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ABSTRACT

This document reports on a National Association for Foreign Students Field Service symposium organized to discuss future directions for research and information management in the field of foreign educational systems, especially in relation to student evaluation for purposes of college admission. Participants included representatives from universities and organizations that support international educational exchange. The major issues considered were: the goals and priorities for international educational research; the review process for research and placement recommendations; resource development and allocation; and information management. Included in the report are summaries of discussions, surveys, workshop reports, the keynote address and a glossary. Appendices include: (1) text of the keynote address by Cassandra Pyle; (2) two Discussion papers, "Foreign Educational Systems: Priorities in Research" (Rebecca Dixon) and "Foreign Educational Systems: Options in Information Management and Dissemination" (Steve Watson); (3) summaries of survey results for the "1989 Survey of Users of Information on Foreign Educational Systems" and the "1989 Survey of Associations and Agencies"; (4) a status report on "TRACE" (Trans Regional Academic Mobility and Credential Evaluation), an international higher education database; and (5) a list of symposium participants and their affiliation. (LPT)

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foreign educational systems

Future Directions in Research and Information Management

NAFSA Field Service Working Paper: 9

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A report on the NAFSA Field Service Symposium

Silver Falls State Park

Sublimity, Oregon

July 8-10, 1989

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Edited by

Caroline Aldrich-Langen

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We hope this report reflects the high quality of the contributions made by the keynoter, the authors of the two background papers, as well as the energies of the participants in reacting to these papers, and formulating initiatives for further study by those involved in international research. Edward Devlin, from Monterey Peninsula College, willingly provided technical services, quickly converting our report's text files into acceptable page layouts. For his enthusiastic assistance, and similar energies from all members of the Symposium Planning Committee, the international admissions community is very grateful. Additionally, the University of Illinois Survey Research Laboratory advised the planning committee on survey construction and methodology. Staff in the NAFSA Central Office provided invaluable assistance to all phases of the symposium. We sincerely appreciate the special help provided by these groups of already active individuals. Finally, the quality of the symposium itself derived from the tranquil setting of Silver Falls State Park and from the excellent services of the conference center staff.

AN UP-FRONT GLOSSARY

AACRAO. The American Association of Collegiate Registrars and Admissions Officers, Washington, DC.

ADSEC. The Admissions Section of NAFSA (see below).

CEC. See "Council."

Council. The National Council on the Evaluation of Foreign Educational Credentials. Also called the "CEC." Reviews and approves placement recommendations for WES and PIER publications. The Council is the only consensus group in the United States which reviews and approves recommendations for the admission and placement of students from other countries into U.S. higher educational institutions, as well as monographs on educational systems. It has no governmental authorization.

Data base. A collection of data, commonly called "data elements", which is stored in a computer.

Expert system. A software package that includes: (1) a stored base of knowledge in a specialized area, and (2) the capability to probe this knowledge base and make recommendations for decisions. Expert systems process decision criteria (see "knowledge base" below). They allow interactions with a user. In order to supply optimal answers to specific questions, an expert system may respond to the user with further questions and then apply a set of rules from its knowledge base to aid it in decision-making. For example, if the user asks, "What information exists on the General Certificate of Education?", the computer after processing decision criteria may respond, "From what country?" and further, "During which year?" Or, if the user asks, "How many students from New York?", the computer may respond, "Do you mean the state or the city of New York?"

Expert systems are products of research in the field of artificial intelligence.

Knowledge base. A data base of all the related, known facts, figures, and items...whatever might be electronically available on a given subject. It is the data part of an expert system. For example, an international admissions knowledge base would consist of existing data bases (such as TRACE), author files of country information, and periodic country-specific items that appear in the NAFSA newsletter. Additionally, a knowledge base stores sets of decision criteria for various topics that allow an expert system to make decisions. These criteria reflect how an expert might reach decisions regarding the subject covered by the knowledge base.

NAFSA. The National Association for Foreign Student Affairs, Washington, DC.

NCEP. The National Credentials Evaluation Project, sponsored by the NLC, and administered by NAFSA.

NLC. The National Liaison Committee on Foreign Student Admissions, a joint committee consisting of membership from the following professional associations: NAFSA, AACRAO, The College Board, The Institute of International Education and the Council of Graduate Schools.

PIER. Projects in International Education Research, a project of AACRAO and NAFSA. The PIER committee establishes certain research priorities that might be well served by a workshop of admissions and foreign student advising professionals. It coordinates its research priorities with the WES committee. PIER reports are studies of educational systems already accomplished by workshop groups.

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Placement recommendations. These recommendations are statements of school level, course, and degree comparability—often formally approved by the Council—that guide admissions and placement officers at higher educational institutions throughout the United States.

TRACE (Trans Regional Academic Mobility and Credential Evaluation.) An international data base of educational systems. Participation by the U.S. in TRACE is being sponsored by the NLC. See Appendix F.

WES. World Education Series. A series of volumes, published by AACRAO, each of which usually treats a single country, and provides an in-depth study of the educational system. The placement recommendations proposed by the authors are reviewed by the Council for general appropriateness for the U.S. higher educational community.

INTRODUCTION

The international admissions profession has grown from a small cadre of university admissions officers, who communicated informally, into a tightly knit nationwide network of professionals supporting all of the diverse aspects of international educational exchange. This network has expanded significantly in the past fifteen years as the number of international students and scholars studying in the United States has increased and the impact of resulting exchanges has been more far-reaching than expected. Members of the profession have committed themselves to the production of two major research series—the World Education Series/WES volumes and the Projects for International Education Research/PIER reports—as well as several support publications. However, the luxury of examining whether current publications meet the needs of an ever-expanding group of users has seldom existed. While the international admissions profession has been successful in developing creditable research processes and respected research publications, it is now time to look at the process and product to see if they truly meet the needs of tomorrow's professionals, and if available resources are being utilized to their fullest potential. It is also important to look at innovative strategies for raising revenues to support research, as well as using new technologies to cut the costs involved in the production of hard copy.

Traditionally, two major professional organizations—the National Association for Foreign Student Affairs (NAFSA) and the American Association of Collegiate Registrars and Admissions Officers (AACRAO)—have sponsored the majority of research conducted specifically in support of the admissions process. Major funding for these international research projects has been provided by the United States Information Agency (USIA), specifically, the Advising, Teaching and Specialized Programs Division of the Student Support Services Division. The concepts, mechanisms, and products have varied, depending on the supporting organization. However, the output has been similar and the focus consistent—to produce research that aids admissions officers and credential evaluators in determining the admission and placement of international students in U.S. institutions of postsecondary education.

It is within the context of these parameters that Kitty Villa, University of Texas—Austin, as chair of the World Education Series/WES Committee, originally envisioned in 1987 a symposium which might provide an opportunity to analyze and synthesize future directions for research and information management in the field of foreign educational systems. A planning group, appointed in late 1988 by the Admissions Section (ADSEC) of NAFSA, expanded on her original concept. A symposium would provide a forum to investigate: the availability of new technologies, rising costs of publication of volumes, acknowledgement of varying levels of sophistication in WES and PIER publications, and a reduction in funds available for research. These factors combined required examination of the quality, objectives, and traditional patterns of research in the field, as well as the management structure for research. Such was the task set for the symposium in Oregon.

With a grant from USIA through the NAFSA Field Service, and with assistance from NAFSA, ADSEC, CEC and PIER, the symposium—Foreign Educational Systems: Future Directions in Research and Information Management—convened at Silver Falls State Park in Oregon on July 8-10, 1989. Twenty-nine people, representing fifteen universities and eleven organizations that support international educational exchange, gathered for three days of intensive deliberation. (For a list of the participants, see Appendix G.) The major issues considered were the following: the goals and priorities for international education research, the review process for research and placement recommendations, resource development and allocation, and information management.

Design and Agenda of the Symposium. Prior to the symposium, two background papers were prepared and distributed to the participants for their review. One paper (Appendix B), "Foreign Educational Systems: Priorities in Research," by Rebecca R. Dixon, Associate Provost of University Enrollment, Northwestern University, attempts to identify significant needs in research; the users of it; the problems faced in providing accurate, high-quality, and consistent research; difficulties in securing authors, project directors, and funding; and the necessity for training professionals to use publications. The other paper (Appendix C), "Foreign Educational Systems: Options in Information Management and Dissemination," by Steve R. Watson, Director, University Computing, Washington State University, provides a glimpse of the future, as well as creative ideas about collecting information, maintaining and sharing it through standardized data bases, data

processing, and communication networks. Participants were asked to read the background papers and write a response to each author before the symposium.

In addition, two surveys were conducted and the results circulated to the participants prior to their arrival in Oregon. The first one, "A Survey of Users of Information on Foreign Educational Systems," solicited the views of a scientifically selected random sample of approximately 1,200 foreign student admissions officers, foreign student advisers and study abroad advisers on some of the information and research issues to be considered during the proceedings (refer to Appendix D for a summary of this survey). The second survey, "A Survey of Associations and Agencies," solicited the views and concerns of thirteen key professional organizations which support international education exchange related to the development and flow of information on foreign educational systems (refer to Appendix E).

The proceedings were also designed to include a status report on "TRACE (Trans Regional Academic Mobility and Credential Evaluation)", a higher education data base originally conceived by eight countries. Participants agreed that recommendations evolving from the symposium should proceed in concert with TRACE developments. (For further information on TRACE, see Appendix F.)

Following the keynote address and discussions of the two background papers and surveys distributed prior to the symposium, the participants divided into individual work groups to formulate initiatives for further study regarding priorities for research and information management in the foreign admissions community. We call your attention to each of the four group reports and the directions implied by the initiatives therein. At regional and national NAFSA and AACRAO meetings during the 1989-1990 year, there will be forums specifically designed to discuss these initiatives and to solicit comments and suggestions from the entire membership and other interested parties.

The members of the Symposium Planning Committee invite you to participate actively.

Mariam Assefa
Edward Devlin
Andrew Hein
Fred Lockyear
Mary Cay Martin
Gene Oliver
Joann Stedman, Chair

THE SYMPOSIUM: OPENING SESSION

Cassandra Pyle, Director, Council for International Exchange of Scholars, opened the symposium by providing an overview of exchanges of foreign students and scholars and the implications they have for research in international education, as well as the future of the profession. [For the complete text of Ms. Pyle's opening remarks, see Appendix A.]

Summary of the remarks by Ms. Pyle. Admissions personnel should prepare for the future by expanding their perspective of the role they can play: 1) to make informed assessments for the admission of foreign students and scholars to U.S. institutions; and 2) to serve as informed resources within their institutions as they develop or expand other international contacts—study abroad linkages, overseas campuses. If they accept an expanded role, they need also to consider the significant changes that impact on their profession. These rapid changes underscore the information which is gathered and shared.

For example, consider the changes in the geopolitical arena that have occurred. Ten years ago, the Pacific Rim was just becoming a common regional term; today it dominates our economic agenda and much of our political agenda as well. OPEC countries were a dominant force ten years ago but their collective strength has decreased because of declining oil prices. Declining demand for oil has created economic and political chaos in Venezuela and Mexico. Brazil, a strong, dynamic country just five years ago, has now become one of the most fragile in South America. The cold war, which focused on the threat posed by countries behind the Iron Curtain, has disappeared. Both Poland and Hungary are looking at a possible restructuring of their systems of education, using the U.S. system as a model.

These geopolitical and economic upheavals have directly influenced the exchange of foreign students and scholars. The impact of the decline in oil prices has affected the flow of students to the U.S. from OPEC countries. Expansive exchange initiatives by our government continue to bring Central American students to the U.S. to counter the high number of students going to the Soviet Union for higher education. At the same time, our relationships with the Soviet Union have changed to such an extent that all kinds of exchanges, previously thought impossible, are being established. Agreements regarding the recognition of secondary and tertiary degrees are being developed within the European community to facilitate student mobility. There is clearly competition now for foreign students on the part of many developed countries, spanning Western Europe, Canada, Australia, and Japan.

As new relationships have developed, there has been increased activity. Institutional linkages and study abroad programs are of growing interest to U.S. institutions. When institutional representatives negotiate linkages and other international programs, admissions, placement, and degree equivalencies may appear in the agreements. Various campus offices may be left to cope with honoring agreements already agreed upon. Since the U.S. is probably one of the few countries where matters of degree equivalence are not negotiated centrally at the national level, there may be a need to look at negotiating study abroad relationships in new ways, at least if we are to continue sending large numbers of students to western Europe.

Additional activity is occurring as U.S. institutions develop overseas campuses. As these branches increase, both the host country and the U.S. campus will need more information leading to a better understanding of each other's educational system. In light of the increased number of participants and activities in international exchange, new and updated information is essential. It is necessary to look beyond the immediacy of the normal admissions tasks (which still need to be done) to seek ways in which the admissions community can also facilitate this expanding exchange activity. To support this research, financial resources are needed, as well as a familiarity with emerging technologies. Clearly, new challenges face us as we attempt to gather information and produce the results of quality research.

SUMMARY OF THE DISCUSSION OF REBECCA DIXON'S PAPER—FOREIGN EDUCATIONAL SYSTEMS: PRIORITIES IN RESEARCH

[For the complete text of Ms. Dixon's paper, see Appendix B.] Ms. Dixon opened the discussion by acknowledging the thoughtful, expansive comments she received from the participants in response to her paper. In leading this session, Ms. Dixon incorporated not only the ideas she received from the participants, but also results of the two surveys conducted prior to the symposium (see Appendixes D and E). In utilizing this format, Ms. Dixon further emphasized key issues regarding priorities in research for discussion:

A. Priorities for research: who are the primary users and what is the information really needed? What group will define and distribute research?

B. Information review process: how should management of the task be organized?

Who are the primary users? In reviewing the responses to her paper and the surveys, Ms. Dixon identified international admissions officers—those people who evaluate foreign credentials—as the primary group to be served. Other groups who use research are:

- Credentials evaluations agencies;
- Academic departments and faculties (who not only make decisions on students' academic credentials, but also on faculty hiring/tenure);
- Professional associations and licensing boards;
- Foreign student advisers, instructors in English as a second language, and study abroad advisers;
- Secondary school counselors;
- Educational attaches;
- International exchange agencies (*e.g.*,Council for International Exchange of Scholars [CIES], Institute for International Education [IIE]);
- Overseas advisers;
- Government departments (USIA, Department of State, and other governmental agencies);
- Other overseas entities;
- Students;
- Researchers.

Notwithstanding all these other users, the international admissions officers are clearly the primary group using research on educational systems.

The participants provided commentary on Ms. Dixon's summary and ideas for the working group which was to deal with this topic. Some suggested that it is important to deal with the concept of uses of information, not users. If "educational level of overseas study" is an important "use of information" for both admissions officers and study abroad advisers, then the need for such information can be equally satisfied in one publication. The participants agreed against broadening the users/uses to the extent that no users are served very well.

At the same time, participants were reluctant to provide distinct, separate information for study abroad and other professionals. Obviously, there is a dearth of information on foreign educational systems throughout the world. According to the surveys, existing publications are already useful to many other international exchange constituencies. Perhaps these publications might be marketed more widely so that specific user groups, other than admissions officers, might avail themselves of information. If the publications are suitably descriptive, various user groups will discover valuable information and use it accordingly.

What information is really needed? Ms. Dixon again reviewed the responses to her paper and to the surveys. Greatest needs in research were identified as follows:

- Publish information more often;
- Make available simple (simplified or standard) system outlines; simple (simplified or standard) placement recommendations. "Benchmarks" (major entry/exit points in an educational system) might be useful;
- Improve delivery; make sure users have what they need;
- Inform more people—market, promote;

- Provide more detailed information;
- Agree on the interpretation of credentials.

Ms. Dixon added others' suggestions that further "needs in research" might be:

- Relate student performance to entrance credentials;
- Study the effect of U.S. degrees after return home;
- Train recipients of research how to use the material, especially the placement recommendations.

Discussion among those gathered immediately eliminated relating student performance to entrance credentials. Because of the incredible diversity in admissions practices and academic standards among U.S. higher educational institutions, normative student performance data would be very misleading. Additionally, a "bad experience" (*i.e.*, poor performance) in a U.S. institution might not necessarily mean "insufficient background".

The participants discussed "simple" approaches to the presentation of educational research. Obviously, "simple" does not mean "easy". The point was made that unnecessarily elaborate text appears in some WES volumes. Meaty, more concise, uncomplicated, understandable research is helpful."Benchmarks" (see above)—or "usable" information—with fewer of the micro-details, may be preferable to the majority of users. Other participants suggested that credential analysts, as a rule, don't see the "typical university preparatory" applicant. Rather, they see applicants with a greater diversity of credentials. Therefore, simple benchmarks may not be an adequate solution.

The survey of international organizations conducted prior to the symposium indicated that it was important to improve user access to information, to enhance the training of users, and to improve collection and maintenance of data (see Appendix E for the results of this survey). It is important that the symposium's work groups consider these priorities in their recommendations for a future plan.

Also, when considering priorities in future research, it is useful to consider how users feel about current sources of information. Ms. Dixon reviewed results of the survey of users of information on foreign educational systems (see Appendix D). "Somewhat useful" responses were used, in addition to those indicating "Very useful", in order to moderate the extremes inherent in the data collected. WES and PIER volumes are clearly regarded as "very/somewhat useful". The AACRAO/AID publication, *Foreign Educational Credentials Required for Consideration of Admission to Universities and Colleges in the U.S., The Country Index*, *International Handbook of Universities*, and the *Graduate Handbook*, in that order, were deemed important and useful by those surveyed. Symposium participants did not find these results particularly surprising, nor significant, except that they may confirm the preference by users for information that is "easy" to use, as well as their confusion over developments in our various publications:

—Erratic distribution of WES volumes (some distributed free to members, some distributed only if members order);

—Some members still recognize workshop reports by the acronym "JCOW"; and they may not respond to an item listing "PIER" reports.

That experienced users may find "simple" outline approaches to country systems useful as memory refreshers only underscores the value of different approaches to data on foreign educational systems.

Ms. Dixon reviewed even further the survey responses from users of foreign educational information, this time to discover the importance of various types of information. Using the "very important" and "somewhat important" responses of foreign admissions officers only, she arrived at the following list, ranked in order of importance:

1, 2	Grading systems, grading practices;
3	Lists of accredited/recognized institutions, agencies;
4	General description of the system;
5, 6	Systems of accreditation/recognition, admissions requirements;
7	Credentials for admission and placement;
8, 9	Glossary, degree requirements;

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10 Sample documents;

11 Secondary education;

12 Placement recommendations (placement recommendations ranked 8, 9 when the responses of all those surveyed, including admissions officers and study abroad advisers, were considered).

The participants observed that, with the exception of the description of the system of accreditation, much of the above-listed information might be presented in a tabular format, without much prose. This has implications for the delivery of information and the costs.

Ms. Dixon asked the participants to define categories of formats for research. Some of those suggested were:

- Overviews of educational systems (*e.g.*, those of smaller African countries);
- Comprehensive studies (*e.g.*, a big volume covering the Peoples' Republic of China);
- Special reports on a segment of an educational system (the upcoming United Kingdom workshop is an example—pieces on various aspects of developments in the United Kingdom. Another example—grading systems/practices in Brazil. If you can't do the whole country of Brazil, maybe you can do a segment of it);
- Updates—smaller pamphlets, monographs, and/or newsletter articles updating previous WES, PIER, other studies on educational systems;
- Issues (*e.g.*, CEGEPs in Quebec, clarification of transfer practices, and correction of earlier studies);
- Guidebooks (*e.g.*, *The Country Index*, *Graduate Handbook*)
- Training manuals (*e.g.*, the manual for beginners in international admissions, prepared by AACRAO's International Admissions Committee (formerly the Admissions, Evaluation, and Placement Committee);
- Bibliographies, lists of other sources, data bases like TRACE (Trans Regional Academic Mobility and Credential Evaluation).

Several participants suggested that the current process for producing these categories of research doesn't work very well. Because of funding restraints and the volunteerism required to get this research published, there are serious delays in publishing results of research. For example, some of the research that went into the *Graduate Handbook* was five years old before it was released. One participant suggested the use of newsletters and other current, widely distributed formats; these vehicles are not being very well used. A danger cited as inherent in the use of these instruments is quality control of the information distributed. One participant suggested that each year's ADSEC newsclips in the NAFSA newsletter might be organized by country—as one way to distribute timely data.

There was agreement that good, comprehensive bibliographies are essential to research in international education. One bibliographic resource cited was the World Bibliographical Series; Oxford [England]; Santa Barbara, California: Clio Press. A World Bibliographical Series report exists for every country in the world. Publication dates vary, according to when the country research was completed.

Placement recommendation approval process: how should management of the task be organized? The responses Ms. Dixon received to her original paper indicated agreement that there should be more efficient management of research, especially for funding purposes. In the responses received, Ms. Dixon perceived some consensus regarding her proposal for a committee to oversee and coordinate international admissions publications, one that might combine some of the purposes of current committees (WES and PIER, for example). On one point, however, the participants were very clear. Such a committee should not be another work group on top of existing committees; this would be another layer that would only further confuse funding agencies and users. An alternative to creating a separate committee combining WES and PIER functions might be to simply merge WES and PIER with the Council. However, some participants felt strongly that if a "council-type review board" is needed, it has to be separate from other "overseeing/coordinating" responsibilities (PIER, WES, or any other committee).

While the idea of a committee to oversee and coordinate international admissions publications garnered favorable response, participants expressed ques-

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tions regarding the possible size of such a committee, how constituencies would be represented, and the costs, including staffing, that such a committee would incur. Ms. Dixon suggested that it is imperative that the working groups consider in their deliberations the value of having a single publications committee. What would it accomplish? Would it be worth the costs involved? She elicited the following ideas from the group regarding possible functions of a publications committee:

- To assess the needs for international educational research; conduct a periodic review to determine when updates of educational systems are needed;
- To recommend the format (or category) for the research (comprehensive, an update, an informational "segment" of a system);
- To prioritize the projects needed;
- To locate funding sources; this task might be delegated to a more experienced person or group of persons;
- To find authors, project directors, or other groups to conduct studies (*i.e.*, evaluators in the National Credentials Evaluations Project might together produce a comprehensive bibliography);
- To control the quality of the product. There needs to be a more systematic way to identify what needs to be studied, researched. What are the particular issues—the "burning questions" for 50% of the users—for the country under discussion? How is research monitored to make sure these topics are adequately researched and covered?
- To develop strategies for the production and distribution of research—in paper or via electronic means.

Ms. Dixon emphasized that, for a "committee to coordinate international admissions publications", it is critical to its functioning to include the following:

- Highly qualified members representative of the various constituencies, with complementary skills;
- Centralized, funded staff support;
- Funding to accomplish the committee's charge.

One participant asked about the timeline required to implement such a publications committee. Ms. Dixon stated that, assuming the group formally recommends establishment of a publications committee, there needs to be open discussion, consultation, advertising, and soliciting ideas, before any steps are taken towards implementation. It will take a couple of years for the concept to evolve. . .to make it work.

SUMMARY OF THE DISCUSSION OF STEVE WATSON'S PAPER—FOREIGN EDUCATIONAL SYSTEMS: OPTIONS IN INFORMATION MANAGEMENT AND DISSEMINATION

[For the complete text of Mr. Watson's paper, see Appendix C.] Mr. Watson opened the discussion by reiterating and expanding on the themes he presented in his paper. He reminded symposium participants that there is a good deal of technological development available that will allow for more timely and cost efficient sharing of information on foreign educational systems. However, it is important to remember the following as options are considered:

- Technology is not an end in itself. It is a means to the end.

- Resolving the policy, procedural, and ethical issues is a key, first step. Only after these have been carefully defined (what is wanted and where to go from here), can exploration of the technological issues begin—what hardware, software, communications devices to utilize. (TRACE is a good example of a lot of planning involving policy, procedural, and ethical issues. The Interim Steering Committee has considered issues such as how to disseminate the information and how to connect people to the data base, what are the reasons for being part of TRACE, what to charge, how to format institutional descriptions, and so forth.)

- Once the issues and the information system have been defined, a data architecture an standardized data elements must be developed. Consistent rules must be developed for data collection, maintenance, storage, retrieval, processing, and distribution. Consider foreign addresses. If the central mainframe is designed to accommodate two lines of 50 characters and someone builds a data base designed to accommodate three lines of up to 70 characters, it will be impossible to connect the two data bases. Another example is provided by developments in electronic communications. Implementation of facsimile (FAX) image processing was easy because it is built on an already standardized telephone system, and the rules and policies had long been established.

- It usually takes three months before computer users want to connect to something—the mainframe, electronic mail—that allows them to accomplish their objectives. Plan for this eventuality right up front with a clear vision of what is wanted and needed over the long term. Get all the costs straight from the start to avoid nickle and diming in the budgeting process.

- For any new technology, the general rule is: five years for lab development, five years creating the market and getting the product out, and five years to make enough profit to pay for development costs. (Eventually it will take intervals of four years.) Look to see what's coming down the road by investigating what is happening now in the labs.

- It is important to understand how quickly technology is changing. Consider the following. Computer processing speeds are now measured in billionths and trillionths of a second. The amount of permanent storage that in 1953 took 400 cubic feet, in 1989 takes .000069 cubic feet. One optical disk stores 500 million characters of information. The entire Encyclopaedia Brittanica, including visual images, consists of 30 million characters. To store on paper the 5 trillion characters of information that comprise the books of the U.S. Social Security Administration would take a bookcase 300 feet long and 50 stories high. The same amount of data can be electronically stored on 40 compact disks.

- Hardware is becoming a commodity. Similar to the development that occurred with cassette players (cassettes now work on all models, regardless of manufacturer), hardware will be standardized, except for some special features, by the mid-1990s. This means software will be the key to the future.

- There is nothing wrong with maintaining manual alternatives when no automation exists and, in some cases, it may even be cheaper and more efficient.

In addition to the foregoing reminders, Mr. Watson recommended to symposium participants that to raise funds and get the information, it is important to create alliances with outside organizations (business, government, other institutions, and vendors). What can be offered them, in turn, is help in learning how to communicate with foreign countries. He suggests that local systems be tied to a central system; don't wait for someone to present an already built system. Finally, he urged the creation of a preferred future, a strategic view of future directions and goals to accomplish. This will allow taking advantage of technological options when the time is right.

Several participants directed questions to Mr. Watson. One asked about the negative side of technological developments. Since our society is growing more accustomed to and dependent on electronic technology, what's out there—like viruses—challenging the integrity of the situation? Mr. Watson responded that the biggest problem lies not with viruses because they can be controlled with safeguards. Ninety-five percent of computer crime is committed by those authorized to do it. This danger has led to the fastest growing field in computing: how to put controls and checks into the system to make sure that nothing is there that shouldn't be there. It is generally called "electronic data processing auditing."

One participant expressed an interest in learning how to encourage reluctant staff, and make them attracted to and comfortable with the new technology. Mr. Watson explained that with today's needs for information management, there are simply no jobs anymore for fearful employees. He encourages us to include people in phases. Begin with "innovators," followed by "champions" (one or two workers who succeed so well that others will want to emulate them),"early adapters," and finally, the "laggers". Other experienced participants agreed that it is very important to attend to training and building friendly systems. Set the stage to make staff comfortable—with one on one training, leading them through new processes. All agreed that it was important to make sure a new system works before trying it out on reluctant employees. There's nothing worse than failure at such a critical point. One participant added that it was critical to be there to support staff when problems occur and programs go awry.

Another participant expressed concern that, with the influx of technology, there is a possibility that the technology itself will reduce the need for educational exchange; that, in a sense, we are working against ourselves. Mr. Watson suggested again that it is important to define the appropriate use of technology in the field of international education, and not to lose sight of the values of cultural exchange. The important thing here is to harness the technology to do what is wanted. The real goals of computing in international education are to reduce "administrivia" (paperwork, unnecessary procedures, and so forth) and to facilitate distance communications. Discussions shouldn't be limited simply to getting publications out, but to all the issues of future directions in research.

With the emphasis on telecommunications, one participant asked about the different worldwide networks available for access. Mr. Watson responded that there are approximately 50 networks accessible in the world right now. There is the BITNET system with which many are familiar. Digital Equipment Corporation currently has 56,000 computers communicating throughout the world. He suggested that there might be a way for U.S. government agencies to help underdeveloped countries bring up their technological and telecommunications systems. Mr. Watson is convinced that the networks being used throughout the world are not being used to capacity, and that, therefore, there is some excess capacity to tap into. Through telecommunications systems, there is practically all the networking needed in most every country in the world, although quality varies from country to country.

Another participant expressed concern that some students, with too much intellectual capital, go home taking U.S. technology with them. Mr. Watson stated that this presents problems in one way but not in another. On the negative side, some of these students understand the technology they take home with them; however, upon arrival, they do not have the means to use their knowledge. And, students returning to some countries have the intellectual knowledge, but they don't want to share it since it is the "edge" they possess over their peers. On the positive side, students can work here in such a way that they build their country's technology in the same way.

A participant asked for an inventory; what is the status of technology on U.S. campuses, and what does the future hold? Mr. Watson suggested concentration on building a policy arm to conduct studies to answer those questions, as well as surveys. Some universities are not as automated as others. It is important to know what developments are occurring on U.S. campuses in order to plan for future use of technology to disseminate information on foreign educational systems.

At the conclusion of the discussion of Mr. Watson's paper, the participants divided into individual work groups to deliberate on the following topics: Goals and Priorities for Research, the Information Review Process, Resource Development and Allocation, and Information Management. The ideas generated by Ms. Pyle, Ms. Dixon and Mr. Watson provided the platform from which the groupds deliberated. The intent of this arrangement was to facilitate the development of specific initiatives to spur further discussion at both regional and national levels of the National Association for Foreign Student Affairs (NAFSA) and the Ammerican Association of Collegiates Registrars and Admissions Officers (AACRAO). Reports of each of the four groups follow.

REPORT OF WORK GROUP I: GOALS AND PRIORITIES FOR RESEARCH

The Issues: There is a substantial amount of written material, both within and outside of the United States, that provides valuable resources for admissions officers and foreign student credential evaluators. Most of these valuable resources are contained on expensive hard copy stock and are not readily available to those who might benefit from them. Some valuable materials are no longer in print, available only via microfiche. Further, the material is arranged in countless formats and definitions are inconsistent. The admissions community is seldom aware of significant comparative education research projects. Gaps in the literature and severe funding problems retard our progress. Good work carried out by highly experienced educators is often wasted because of problems ofcost and distribution.

Some of the resource material is very good, while some is of marginal quality and usefulness. There are also serious gaps in the literature. Much of the material addresses foreign educational systems in a general way describing such topics as access to various educational levels, grading schemes, and certificate titles. Other resources are more specific, providing a detailed discussion of technical education and teacher training. The literature includes institutional profiles, student attrition data, faculty qualifications, and much more. Only certain work is juried for admission and academic placement by admission professionals.

Clearly, there is a need to identify primary users of admissions information, to inform them of the information resources available, and to provide that information in a consistently understandable data base. There is also a need to identify the electronic means and financial resources to gather, maintain, and disseminate information in a timely fashion. And, there is a need for a means to establish priorities for research within the foreign educational community.

Potential users. What publics should be served? (See the questions raised by Ms. Dixon's paper.) With the technology available today, it seems appropriate now to build an electronically accessible data base to serve two general categories of users.

Category 1—Primary Users

Those who are involved in the admission and placement of students from foreign systems of education in postsecondary institutions in the U.S. Symposium participants were primarily concerned with the needs of this group of users.

Category 2—Other Users

- Advisers of U.S. students participating in study abroad, prospective student advisors in overseas centers and schools (such as international schools, ministries of education, USIS, IIE, AMIDEAST, private placement services, and so forth);
- Student advisors and institutional placement officers in foreign embassies and consulates, and U.S.-based officials of USIA, IIE, AAI, and AMIDEAST;
- Professional credentials evaluation service personnel;
- Employers of foreign nationals, including the military services;
- Professional certification and licensing agencies and boards;
- Officials responsible for adjusting visa status (*i.e.*, H-1, L-1, or permanent residency);
- Researchers;

- Secondary school officials responsible for the admission and placement of foreign students in their schools.

Knowledge base. State of the art technology allows complete and up-to-date information to a wider audience in a cost effective manner. For example, the American Library Association will require all university and college libraries to have a compact disk player by 1991; therefore, technological access will be available on every campus by that time. A read-only disk will cost $300; a disk which allows the user to enter questions/comments will cost $1,500. The new technology will allow the user to adapt a CD-ROM for local data entry and formatting. For example, using the same data base, an institution might enter details of a specific student exchange program that could be accessed by cooperating institutions from their terminals. Further, information about a faculty project in Egypt could be shared with any community of users desired. While it is too early to estimate costs for a national computerized knowledge base with universal access, it is likely that if 500 institutions were to subscribe to the project, a cost of $1,000 "up front" and an annual fee of $500 might be realistic. Further, it might be possible to secure "sponsors" from such groups as IBM-China, Microsoft, Interlink Publications, and others, including non-institutional users, who might be interested in the service.

Therefore, it seems timely to begin to think of departing from traditional means of disseminating information—via bound WES and PIER volumes and other paper reports—and moving to a new environment, one in which this type of research is disseminated via disk, tape, and other electronic methods. While paper publications are comprehensive, they cover only a small number of countries and become outdated soon after distribution. Just as there have been attempts to standardize WES, PIER and other country studies, an agreed-upon standardized format needs to be established for use when reporting on all educational systems of the world. The following data elements have been identified as most important by major users: grading systems, grading practices, lists of accredited or recognized institutions, general description of the system, system of accreditation/recognition, admissions requirements, description of credentials needed for admission and placement, glossary, degree requirements, sample documents, secondary education, placement recommendations, and detailed information on study abroad as well as on specific fields of study (*e.g.*, business, health professions, engineering, teacher training).

Responsibility for the establishment of research priorities. Presently several committees exist which oversee foreign educational research (WES and PIER are examples). This duplication causes confusion within the professional organizations and outside. One overall authority—an overseeing/coordinating publications committee to establish general policy and research priorities, could more effectively eliminate duplication of research, determine funding needs as well as sources of funding, and ensure quality control for the information to be disseminated.

Criteria for selection of research topics. The building of a more accessible data base must begin with a set of agreed upon priorities. The following criteria could be utilized for prioritizing research topics:

- Country systems, or segments of systems, not presently covered by existing resources;
- Degree of systematic complexity inherent in a system. Specific problem-generating characteristics of a system;
- Number of students typically coming from a system to study in the U.S.;
- Special problem areas presented by a system (*e.g.*, refugees and undocumented aliens);
- Major problems arising from earlier projects, such as inappropriate placement recommendations;
- Interpretation of specific issues—CEGEPs, British "A" levels, and so forth;
- Monitoring and periodic updating of placement recommendations.

Initiatives Recommended by Work Group I for Further Study:

1. Develop a computerized, comprehensive "knowledge base".

   This knowledge base would consist of comprehensive information regarding the educational systems of all countries included in the data base. Ideally, it would be developed in such a way that information might be accessed in a variety of report formats (those currently used and to be used in future pub-

lications): comprehensive reports, detailed guidebooks, lists of relevant data bases (*e.g.*, TRACE), institutional profiles, workshop reports, overviews of systems or groups of systems, training manuals, and bibliographies. "Slices" of information regarding a particular topic could be extracted from the knowledge base to assist someone in international admissions. The data base would allow for a computerized system of organizing and distributing information. Data elements would be included in a series of formatted CRT screens. Information would be regularly accessed by users in one of two primary ways: a) access to a mainframe computer by on-line terminals, or b) monthly, quarterly ,or annual diskette distribution to subscribers (using optical scanner rather than floppy disk technology).

The capability must exist to output "hard copy" of data for: a) prospective users who do not subscribe to the service and, b) subscribers who prefer "hard copy". Further advantages of a computerized knowledge base include: query-reply capability and creating a "holding file" for user contributions (with review and approval prior to inclusion).

2. Create a committee to oversee and coordinate international admissions publications. A preliminary list of its responsibilities might be as follows:

   a) Determine research needs,

   b) Decide format of output,

   c) Prioritize projects,

   d) Identify funding sources,

   e) Identify authors and project directors,

   f) Assure quality control,

   g) Oversee production and distribution of output.

   The overseeing/coordinating publications committee, comprised of from seven to nine people, would be highly visible, active, open, and responsive to all constituencies. It could meet frequently, in person or electronically. Terms could be for four years. Membership could be determined by appropriate representatives of AACRAO and NAFSA. Permanent support staff for the committee could be located at AACRAO and/or NAFSA. Adequate fiscal support of the board and its staff is a key consideration. It could derive from grants and membership fees from supporting organizations and institutions. Eventually, such administrative support, plus funds for seed money, could come from user fees and sales revenues.

REPORT OF WORK GROUP II: THE INFORMATION REVIEW PROCESS

Issue: The review process of international admissions resource materials and placement recommendations has a major impact on the admission and placement of international students in U.S. secondary and higher education institutions. To ensure the high quality and usefulness of resource materials, the following are recommended:

Initiatives Recommended by Work Group II for Further Study:

1. *Review Process:* Expand the review and monitoring process to include input on a publication's content and organization from individuals representing a wider variety of expertise—specialists in fields of study, of the country under review, and from all levels and types of U.S. education. Their review would occur prior to the formal review by what is now known as the National Council for the Evaluation of Foreign Educational Credentials (the "Council").

2. *The Council:*

   a) The overseeing/coordinating publications committee, which may evolve as a result of the initiatives recommended by this symposium, and the current Council should conduct a review of the composition and accountability of the Council. This review should look at size, representation from the U.S. secondary and higher education community, length of terms, and method of selection, as well as how a newly constituted national review board or council might interact with the publications committee and other groups active in the international admissions community.

b) Continue the work already in progress on resource material which explains the Council's role and methodology, including: criteria for determining placement recommendations, format for placement recommendations, standardization and interpretation of specific placement recommendations, and interpretation of grading scales and practices. This activity would complement all publications that contain placement recommendations. The target audience is authors of resource materials reviewed by the Council, users of placement recommendations, education officials involved with international exchanges, and others interested in understanding foreign educational systems.

3. *Placement Recommendations.* Placement recommendations are an important tool widely used by the international admissions community and should be included in future substantive publications. They assist admissions officers in establishing the level of study and curricular content represented by a foreign credential and thus may serve as the starting point for considering an applicant within the context of institutional policies and admissions criteria.

All substantive publications written for the international admissions community should include placement recommendations which have been approved by a national review board. This review board or council and the overseeing publications committee should establish guidelines for the development of placement recommendations, including the background material required in the publication under review, and methodology for establishing placement recommendations. These guidelines would include the following components:

a) Information required as the basis for placement recommendations: precise name of credential, entrance requirements for and length of study of program, and what the credential gives access to in the home country. Other text may be important to an evaluation of the educational system; for example, the political and economic climate, changes in the educational system, level of preparation of the teaching corps, mobility within the system, percentage of students entering each phase of education, per capita investment in education.

b) A discussion of the importance of identifying critical topics and issues particular to a country under review early in the research for the publication so that they are addressed adequately in the manuscript prior to review of placement recommendations.

c) Criteria for determining placement recommendations: A systematic approach should be developed for identification of patterns and stages of education; that is, benchmarks for comparison with the U.S. system. This task is difficult but important and would result in greater consistency of placement recommendations from one publication to another and an improved basis for understanding the rationale of specific placement recommendations.

d) A description of a new "commentary" section which would address controversial areas of an educational system, including minority opinions when they occur among representatives on the board, differences of interpretation of particular recommendations, or unusual placement issues.

4. *Management of the Information Review Process.*

a) The overseeing committee which has been proposed for international admissions publications should be charged with coordinating the review process of manuscripts prior to council review through their production and distribution. Where there is a need for a project monitor, the publications committee should appoint a person to this position and oversee the monitoring process.

b) When selecting authors and approving proposals for publications, the overseeing/coordinating publications committee should establish the scope and priorities for research to ensure adequate coverage of issues relevant to the country under review.

c) The publications committee should work with NAFSA, AACRAO, and other appropriate organizations to develop training opportunities for the users of placement recommendations.

d) The overseeing/coordinating publications committee should establish a standard style guide for preparing and editing manuscripts. This guide would be followed by all authors.

e) Professional editing, except content editing, should occur in the final stages of publication to ensure the professional quality of the products.

REPORT OF WORK GROUP III: RESOURCE DEVELOPMENT AND ALLOCATION

The Issues. The pool of traditional resources available for international admissions research and information dissemination has been shrinking since the early 1980s, even as needs have multiplied dramatically during the same period. The working group took as its goal the identification and, to some extent, evaluation of means to increase the supply of money available for these activities, with the proviso that training needs should remain linked to information needs and must also be met. Three principal avenues for resource development and allocation are elaborated below: marketing and sales of products, cost-reduction strategies, and fundraising, both for specific projects and to establish a consistent base of funding. In its initial discussions, the work group articulated the following general assumptions:

a) There is less and less money available for old ideas and approaches.

b) There is, however, new money available for new ideas and approaches.

c) We do have alternative means of support and methods of producing and delivering information.

d) The field needs to get rid of "old baggage"; for example, users need to be willing to pay the full cost for products, and organizations need to reassess the value of activities that have "always" had external funding.

e) Funding needs are both long- and short-term; that is, information dissemination cannot be allowed to stop while new structures, products, and resource bases are being developed.

f) It pays to be flexible.

g) Sources of funding will have an impact on research and output content.

h) Technological development must take into account the human factor; that is, users may not be ready for the newest technology.

j) It pays to get maximum mileage out of the research done. We should consider spin-off research projects; abstracts, updates, and country profiles for other clienteles; training programs for educational, corporate, or military audiences (possibly in-country).

Initiatives Recommended by Work Group III for Further Study:

Marketing and Sales of Products. In the long run, income from sales of products holds the greatest potential for helping the international admissions community achieve its goal of building a consistent base of support for its activities.

1. Strive to maintain consistent levels of activity, output, quality, and identity of products (*e.g.*, the "WES" acronym is already well-known in the international admissions community).
2. Invest in a professional marketing approach.
3. Conduct a market analysis aimed at identification of traditional and non-traditional audiences in the U.S. and abroad.
4. Identify marketable new products and spin-offs; for example, a comprehensive knowledge base for U.S. users of TRACE (Trans Regional Academic Mobility and Credential Evaluation project), paired country-specific volumes produced by teams of U.S. and national researchers.
5. Price products realistically and consistently, according to what the market will bear. Consider innovative pricing schemes; for example, bulk discounts, member discounts, subscriptions, standing orders, and special membership fees that would include prepaid publications.

6. Set realistic targets for sales income and gauge other fundraising needs accordingly.

Cost-reduction strategies. Even in the short-run, new technology offers multiple possibilities for cutting costs. The following strategies are among those that should be considered by the committees and associations responsible for each area. Some of these strategies have already been put into effect, at least partially. Their inclusion here is an affirmation of their value and an encouragement to sponsors to continue their efforts.

7. Reduce output costs.

   a) Utilize desktop publishing (entry and layout)

   b) Initiate on-demand printing (as orders are received)

   c) Produce alternate formats for output:

      - Diskette
      - CD—ROM (compact disk read only memory)
      - On-line information
      - Electronic mail delivery
      - Looseleaf hard copy

   d) Arrange joint publishing agreements with commercial publishers

   e) Recover shipping and handling costs.

8. Reduce costs of research and oversight.

   a) On-line editorial work

   b) Partnerships with foreign governments

   c) Reduced funding (perhaps matching grants) for overseas workshop participants

   d) Minimize personnel required to accomplish tasks (small workshop teams, coordination between oversight and review committees, and so forth).

Fundraising. Fundraising efforts for some PIER projects have met with success. Other projects have been delayed or compromised because of problems in raising adequate resources. WES is currently finding ways to piece together restricted funds from several sources to make projects possible. As one enters a new era in research and information dissemination, grantsmanship is the key to finding the start-up funds needed to make the transition.

While potential donors have traditionally been most interested in the concrete output or products of admissions research (and approaches to donors may still need to take account of this fact), the international admissions community needs to do some serious thinking about sources that might be willing to allow funds to be used for the research process and perhaps even for management of that process. A list of possible funding sources identified by Group III follows.

9. Develop a well-conceived fundraising plan, taking account of short term needs for start-up costs for new systems, continuous needs to support technological research and development, and long range needs to establish a consistent funding base—or endowment—for continuing activities.

10. Centralize fundraising efforts between AACRAO and NAFSA in relation to projects, and consider ways to make them more professional. Consider establishing revolving funds (designated funds) for publications.

11. Continuously expand the list of possible donors, making use of new networks and patterns of collaboration.

Possible Funding Sources.

Foundations—some with geographic interests (*e.g.*, Hariri Foundation, Tinker Foundation, Soros Charitable Trust, Rotary International).

Corporations—some with geographic interests (*e.g.*, Occidental Petroleum Charitable Foundation, Inc. [for the Soviet Union, Eastern Europe]); some with content-specific interests (*e.g.*, Educational Testing Service [ETS]/Test of English as a Foreign Language [TOEFL], for-profit exchange organizations); U.S. multinationals (consider debt-swapping schemes); computer hardware and software vendors.

Governments—The United States (USIA: academic exchanges and support services; USIA's Academic Specialist Program/AMSPEC; USIA's American Participants Program/AMPART; the Department of Education's Office of Educational Research and Improvement; Departments of Commerce, Labor, and Defense).

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Other nations (subjects of research [consider debt-swapping with developing countries], users of output).

State governments (licensing agencies—*e.g.*, English teaching).

Local governments (K-12, community colleges).

The World Bank.

Professional Associations—AACRAO, NAFSA, Council of Graduate Schools (CGS), Graduate Management Admissions Council (GMAC), Council for International Education Exchange (CIEE).

Agencies—American Mideast Educational and Training Services/AMIDEAST, Projects for International Education and Training, Latin American Scholarship Program for American Universities (LASPAU), African-American Institute (AAI).

Organizations—International organizations, ethnic organizations in the U.S., U.S. alumni associations abroad, organizations the offer research grants or internships.

Users—colleges and universities, individual professionals (in kind services), professional boards (American Society for Engineering Education, American Physical Therapy Association, American Nursing Association, and so forth).

Others—publishers, advertisers.

REPORT OF WORK GROUP IV: INFORMATION MANAGEMENT

The overall goal of the group was to articulate the possibilities of a system, which, by using modern technology effectively, might develop and deliver the kinds of information required by U.S. professionals in international education to understand and evaluate foreign documents and systems. The group examined issues and goals, and recommended initiatives that could be accomplished in the following time frame: short term (immediate to three years), intermediate term (five years), and long term (ten years). The group looked at the concerns of "users" of research and "producers" of research somewhat differently, assuming the producers (as a group) to be more advanced in initial technological sophistication.

Issues. Practitioners in the field of international admissions have not fully availed themselves of current technology which would allow information and commmunication advances, and as a result, they do not see technology as a priority in professional development.

When implementing new systems of professional activity, a focus on the people involved is fundamental to managing change. Therefore, one of the biggest challenges is to educate both the people who will use new products and technologies and those who will produce them. If the potential of new technological tools is to be realized, provision must be made for education and in-depth training. A significant outcome of this symposium must be a serious commitment to training; members of the international admissions community must be educated.

Both AACRAO and NAFSA are searching for ways to develop expertise and standards in this area. Technology is moving toward greater standardization in equipment, which makes this an opportune time to develop base-level recommendations for hardware acquisition in the field of international education. As technology moves toward greater standardization in equipment, the field of international admissions must follow suit. Available software data base packages must be examined and base-level recommendations developed for their acquisition and use.

The group also recognized that, because of the demand to meet information needs rapidly and the problem of diminishing funds for research,the collection and delivery of information must become more timely and cost-efficient. The group noted that international education professionals are not taking full advantage of world-wide information networks currently being developed by others that could be tapped through existing or future technology.

Group IV examined the impact of technology on four aspects of international education research: the collection of information; storage, retrieval and management of information; information synthesis and display of content; and the delivery, distribution, and consumer utilization of research:

1. Using Technology to Collect Information.

Selection of hardware and software should be relatively standardized and should foster the exchange of information. One particular application would be the utili-

zation of state of the art laptop computers in the field when collecting information for PIER and WES.

Software programs to guide users and "help screens" should be developed specifically for the assistance of admissions officers gathering data in the field. Utilization of other peripheral equipment to gather data could be considered including optical character recognition systems and facsimile/image processing. These would enable the inclusion of more complex graphics (*e.g.* document images) into the production of reportable information.

Group IV discussed a number of ways in which existing information and techniques could be incorporated into development of a "knowledge base," including accessing currently available on-line data bases, using electronic bulletin boards, and sharing information via electronic mail. Other sources of information should also be tapped; for example, ministries of foreign governments other than education ministries, private agencies, and admissions personnel in other countries, whose data might be collected and stored (and, indeed, shared back) using new technologies.

New data bases can be developed with possible future linkage capability as a design consideration. Uniformity of data collection formats will enable more efficient collection and sharing of information. For example, individual data dictionaries that define data elements—like "country name"—according to a standard format will enable linkages with other data bases that define data elements similarly. With no attention to standardization, successful linkages will not be possible.

The group recognized that collecting usable data implies the formulation of policy and procedures, and a need for qualification and training standards required of (and available to) those who collect information.

2. Using Technology to Store, Retrieve, and Manage Information.

Current software including high-powered word processing programs, desktop publishing, and hypertext can enhance our capabilities to input, verify, and update research quickly and accurately. Technology can also provide means of efficient data verification, but the questions of how often data should be reviewed and updated are policy considerations that must be examined.

New storage technologies, such as compact disks (CDs) or optical storage systems (laser disks) might well be useful means to archive and distribute volumes such as the current WES and PIER volumes. Information gathered but not otherwise available, such as material left out of PIER and WES volumes because of space considerations, could be made available in a variety of formats, but only after inaccurate information has been corrected or deleted.

The group agreed that the issues of wide access to, and familiarity with, new systems are prime considerations in the development of data management systems. However, it is not necessary to be highly skilled in state of the art techniques in order to utilize modern data base information effectively. Current systems allow us to utilize data in a wide variety of formats, with a range of technological sophistication.

3. Using Technology to Synthesize Information and Display Content.

Technology cannot be properly utilized without clear and unequivocal policy formulation. This is especially true in the stage where data is synthesized, or processed into usable forms. Perhaps the most critical interaction of technology and policy in research on foreign educational systems is in the process of report preparation and placement recommendation development.

Current technology that can assist in the process of information synthesis includes electronic group editing (via BITNET) and desktop publishing. Future developments with probable impact are improved Optical Character Recognition (OCR) systems and automatic translation of scanned documents from one language to another, as well as interactive video.

However, the concept that has the most profound implications for our field, is that of "expert system." An expert system processes information and assists decision-making by means of expert-derived rules and assumptions. Information is presented to the user not by a book or report, but instead, on the computer screen in response to specific prompts from the user. In the development of such specialized software packages, experts interact with "knowledge engineers" to codify the processes by which informed judgments are derived, and to integrate them with existing bodies of knowledge. Use of the expert system concept is a long-range developmental process which will be central to the management of increasingly voluminous and complex amounts of data that the field demands.

4. Using Technology to Deliver, Distribute, and Use Research.

In the short term, it will be important that delivery and distribution strategies utilize the wide variety of hardware and software currently being used by the membership. Currently available alternatives to paper distribution include diskette-based distribution, electronic bulletin boards, BITNET, and other electronic networks. These may provide cost savings over traditional publication methods but are not expected to replace them.

Long-term strategies require that there be greater standardization in these resources, with relatively easy portability from system to system. Long-range projections include innovations such as interactive laser disk with voice and video capabilities, and information available through expert systems. As an example of how expert systems are currently used, there are "geographic information systems" which allow a user to focus on increasingly detailed aspects of subject matter via a series of windows that appear on a map displayed on the computer screen. The windows appear, and change, in response to questions keyed into the computer. Luxury cars in the mid- to late 1990s may be equipped with these expert locator systems.

Technological innovation in delivery systems requires a commitment to upgrade skill levels of practitioners through training. This step is necessary so that users of these sophisticated systems can effect the economies of effort and scale that technology makes possible, and without which the entire enterprise is wasted. Because levels of skill will not be uniform, it will be necessary to support a variety of user abilities for some time.

Finally, issues related to publicizing the output or product must be addressed, both in terms of user awareness of new technologies, and identification of new constituencies. Merchandising must become a focus along with research.

Goals for Producers of Research

Current to within three years. Use emerging technology to streamline collection and production of research on high-priority educational systems.

In five years. Develop model expert systems as an alternative to and ultimate replacement for present systems of information management.

In ten years. Produce and transmit research using state of the art technology. Develop the knowledge base to link available data bases and other sources of information. Fully implement the knowledge base as the data part of an expert system. Implement the expert system.

Goals for Consumers of Research

Current to within three years. International admissions officers should reach a minimum level of electronic capability. To do this, minimum recommendations for hardware and software compatibility should be produced and disseminated.

In five years. All admissions officers should have access to basic hardware and software. Training should allow the field to utilize the full range of electronic media with some sophistication.

In ten years. Users should have full access to the knowledge base on foreign educational systems with instant tracking and update capability. Expert system software packages (or other products) on a full range of foreign educational systems should be available to admissions officers familiar with their use in the international admissions process.

Initiatives Recommended by Group IV for Further Study:

In the near term—present time to within three years:

1. Develop the architecture for an international education knowledge base.
2. Monitor implementation of symposium initiatives.
3. Co-sponsor projects with interest groups in the associations to develop training methodologies and to create recommendations for minimum standards of hardware and software acquisition.
4. Develop an interassociational project to create an inventory/roster of installed hardware, software, and practitioners in the field of international education skilled in their use.
5. Do a feasibility study of software systems for the efficient delivery of international education research and develop demonstration modules of expert systems to support credentials evaluation and admissions decision-making.

6. Encourage and support conference sessions and workshops, at both national and regional levels, to educate members on potential of changing methodologies.

7. Utilize current word processing and desktop publishing capabilities to produce research. To facilitate the editing process, require electronic submission of materials via laptop computers from each individual involved in a field collection process (for research projects like PIER and WES). Explore possibilities of network-based group editing; for example, in the production of PIER reports.

8. Identify and begin to create access to existing online data bases that contain information relative to foreign educational systems, as the first step in creating the knowledge base.

9. Identify alternatives to traditional paper distribution of report information, to include diskettes, electronic bulletin boards, BITNET, and other networks.

10. Contact other professional associations, universities, and corporations to discover any support or assistance they may be able to provide in the extension of modern technologies for our use in the research process.

11. Create, staff, and support a position to identify and assess the technological options discussed in this report and facilitate the development of field-wide technological capability. This person could identify a panel of experts (with domain and computer knowledge) who would consult with and assist institutions in staff and program development of their abilities, much as NAFSA Field Service consultants do now.

12. Produce specific tutorial programs to train and assist field researchers.

Medium term—within three to five years:

13. Use optical character recognition to input previous research into the knowledge base.

14. Complete production and initiate distribution of an expert system-based research report (software package) on one or more countries of current priority.

15. Continue to assess emerging technology and produce recommendations for inclusion of appropriate innovations into field research systems.

16. Begin to develop a comprehensive knowledge base to integrate all relevant data bases and other sources of information into a single architecture; explore ways of providing access to the widest possible range of consumers.

17. Complete development of policies and procedures for management and maintenance of the knowledge base of world systems to insure a basis for future implementation and for very rapid updating of information.

Long-term—within ten years:

18. Incorporate interactive video technologies into research development and dissemination.

19. Incorporate all world systems into the knowledge base.

Following the individual work groups' deliberations, all symposium participants met together to discuss implications of the suggested initiatives. Participants recognized that the initiatives coming out of this symposium are very far-reaching—creating a vision that could require changing priorities and developing new resources should the profession adopt them. Clearly, maintaining the status quo is an undesirable alternative in that many research activities have currently ceased. New ideas for producing and funding research, and for managing information, must be considered. This report is submitted to the profession for wide distribution and deliberation. Address all questions, comments, and suggestions to:

The Admissions Section (ADSEC)
National Association for Foreign Student Affairs
1860 19th Street, NW
Washington, DC 20009

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APPENDIXES

A. Keynote, *Cassandra Pyle*

B. Foreign Educational Systems: Priorities in Research, *Rebecca Dixon*

C. Foreign Educational Systems: Options in Information Management and Dissemination, *Steve Watson*

D. 1989 Survey of Users of Information on Foreign Educational Systems: A Summary

E. 1989 Survey of Associations and Agencies: A Summary

F. Trans Regional Academic Mobility and Credential Evaluation/TRACE: A Descriptive Summary

G. Symposium Participants

APPENDIX A

KEYNOTE ADDRESS by CASSANDRA A. PYLE,

COUNCIL FOR INTERNATIONAL EXCHANGE OF SCHOLARS

As many of you know, I spent about half of my career to date working in international student admissions. However, I left my position at the University of Chicago in 1974 and have not been actively engaged in admissions work since that time. Because it was so long a part of my life, I maintain a lively interest in admissions issues and I imagine this is the reason I was asked to be with you. My role here is to share some observations about the broad landscape in international exchanges and to identify some trends which have potential impact for the way in which the admissions community might operate in the future.

In early May, I participated in a Wingspread meeting to discuss the Exchange 2000 project of the Liaison Group: to look into the future, to try to sketch what that landscape would look like, and to develop proposals for action. I participated in preparing the working draft as well as one of the working papers. I was somewhat satisfied that we were thinking hard and creatively about the future. However, after Wingspread I realized that we had not been sufficiently oriented to the future. It is my sense that all of us work so intensely in our jobs and at our desks, and that we have such a strong orientation to our immediate responsibilities and our own institution or organization that it is difficult to get a broad perspective of where we might be moving in the future.

At the Wingspread meeting, the session on new technologies was the one area where we achieved a better futuristic perspective. To some degree we all put on our Buck Rogers suits and fantasized about that future. I sensed it was easier for us because we knew far less about technology. Our imagination went wild. I am not sure our projections were at all realistic but I leave to Steve Watson the task of reining in or expanding the technological horizons of this symposium.

In preparing for Oregon, I read a number of reports which look to the future, be it the 1990s, the year 2000, or the 21st century. There is broad consistency in many of the reports' observations. The United States is no longer dominant, in charge, or in control. The agenda for the future is too large and the needs too interdependent for any one country to have the degree of dominance that we have had in the past. A forthcoming book from the Brookings Institution, entitled *Restructuring of American Foreign Policy*, says quite bluntly:

> "...the world has changed, but America has not. Can we face our challenges from a position of strength and full command of our extraordinary resources, or will we ignore them until forced into full retreat, in crisis, with our strength diminished? These problems are now evident to many in our society, and a new consensus can emerge. The time to restructure is now."

The major theme of the book is that "continued leadership in the decades ahead will almost certainly require new ideas, new objectives and new methods of pursuing them—that is, a redesign of American foreign policy."

We live in a time of increasing nationalism and growing regionalism. It goes without saying that the United States' main rivals, the European community and Japan, are also viewed as our closest allies. One could argue that the very success of the American initiatives to reconstruct Western Europe and Japan have been highly successful and have helped create the strong competition we face today.

Ten years ago the "Pacific Rim" was just being introduced as a regional term. Today this region dominates much of our economic and political agendas. The emergence of China, the dominance of Japan, the growing role of Australia in Asia, the development of a strong ASEAN (Association of South East Asian Nations) community, the movement towards democracy in the Philippines, the rapid and successful economic development of Korea and Taiwan (including a rather successful reversal of their brain drain) are all indicators of the new dynamics of the Pacific Rim. Although Latin American countries on the Pacific Ocean are

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included in the Pacific Rim definition, it is quite clear that East Asia controls the dynamics of movement and change in the region.

The OPEC countries were a dominant force ten years ago. Today their collective strength has been substantially marginalized by declining oil prices. The impact of this decline is felt keenly in the Middle East and it has had dramatic effect on the flow of foreign students to this country. In Latin America, particularly in Venezuela and Mexico, the bottoming out of oil prices has created economic and political havoc.

The debt crisis has threatened and, in many cases, has eroded the base for newly emerging democracies. Not five years ago, Brazil was a strong and impressive nation state, but it has fallen from the position of one of the most prosperous and dynamic countries to one of the most fluid and fragile in the South American continent. Its potential for development as an economic leader as well as an example for democratic government in the region has been seriously undermined.

One can hardly discuss Latin America without commenting on the frightening escalation of the drug trade—its impact on the economies and the political governance of countries, and the enormous threat it represents in U.S. bilateral relations.

Central America, a fragile and troubled region, has had great impact on the United States. I mention it specifically because of the educational development decisions which are tied to political initiatives in that region. Were it not for the serious political antagonisms with the region, I doubt very much that the Kissinger Commission would have recommended such expansive educational exchange activity so as to counter the large number of students being courted by the Soviet Union.

The bi-polar world of the 1960s in which we focused on the dangers of the Soviet Union and the Marxist state has disappeared. George Kennan, the *New York Times*, and others have declared that the cold war has ended. There have been steady breakthroughs in our relationships with the Soviet Union and Eastern Europe. The political initiatives establishing new relationships have all included provisions for increased educational exchanges at all levels—citizens to scholars doing advanced research. We must recognize that our relationships with the Soviet Union have changed so dramatically that none of us could possibly have dreamed this movement even five years ago.

Consolidation of the European community will have profound impact on the development of plans in Europe for the mobility of students. In 1987, the Council of European Communities adopted ERASMUS (the European Institute for Education and Social Policy). In its first year, ERASMUS projected an annual goal of ten percent mobility of all European students. To achieve this goal, substantial monies have been put aside by the European community, agreements are being developed regarding the recognition of degrees, and many mechanisms are being developed to facilitate mobility within Western Europe. There are now great expectations for East-West European mobility as well. The combined strengthening of the European community with the collapse of the communist model in the Soviet Union and Eastern Europe will surely lead to changes in the relationship between the United States and the entire European continent. There are indications of a possible ERASMUS style movement in the Pacific Rim region. There is still not much sign of a Western hemisphere ERASMUS (Canada/U.S./Latin America), but the model is a stimulating one and we may well see new activity.

The picture for sub-Saharan Africa is not positive. Those of us working in admissions in the 1960s remember well the emergence of new nations throughout the African continent. Concurrent with independence came the building of new universities, as well as the importance of existing colonial institutions such as the Ibadan University in Nigeria and Makerere University in East Africa. Institutional building, literally and figuratively, was heavily financed by AID, Rockefeller, and Ford Foundations, combined with support from England and other European countries. It was a period of great, great promise.

Regrettably, the state of most African governments as well as the state of many of their educational institutions has suffered badly in the last two decades. U.S. support, and to a large degree other country support, has fallen far below their needs. Our primary impressions of Africa today are drought, famine, serious health problems, political uprisings, and unstable governments. Our educational interaction with sub-Saharan Africa is a mere shadow of what it was in earlier years. The representation of African students reflects, by and large, only the affluent for external financial resources to assist African students is minimal.

I had left my position at the University of Chicago before we began to see the ways in which political and economic upheavals created dramatic influences on the

mobility of students. The cessation of relations with Iran, the dramatic opening of China, the rapid decline of the Mexican peso resulting in the recall of hundreds of Mexican students in the U.S., the changes in the Soviet Union and Eastern Europe have all presented recent major changes in our political and economic relationships which have impacted the mobility of students in ways I really had not known earlier in my career.

Lastly, perhaps the most dramatic changes for our future will be influenced by the rapidly developing technology. Walter Wriston, writing on the issue of technology and sovereignty in the 1988-89 winter edition of *Foreign Affairs*, said "the information revolution is changing our global economy, transforming national, political and business institutions and altering national foreign policy objectives and the method of achieving them. Changes of this magnitude are profoundly disturbing to the power, and with good reason." He quoted a California Institute of Technology scientist who said that "the industrial revolution enhanced productivity by a factor of about 100, but the micro-electronic revolution has already enhanced productivity in the information-based technology by a factor of more than one million—and the end is not in sight yet."

To think that when I left admissions work in 1974, computers were simply not part of my operation nor those of many others. At best we had a few autotype letters! As we approach this seminar, I have a feeling that the emergence of the computer and micro-electronics has more profound implications than we can possibly imagine.

More discreet trends in educational exchange can't help but be affected by or mirror the broad trends I have mentioned above. Let's look at some of them.

Students from East Asia dominate our foreign student population and the large numbers of Middle Eastern students of the 1970s either disappeared (as with Iran) or have been reduced significantly. These declines have rapidly been supplanted by students from China, Southeast Asian countries, and Japan. Whether or not the growth from China will continue is anybody's guess right now. The uncertain future of Hong Kong may present serious problems.

The economic profile of most students tends to indicate that only the more affluent are able to study in the United States. This is clearly one of the explanations for the large numbers of East Asians. The economies are strong and families are now able to afford (for some at great sacrifice) to send students abroad. The dramatic decline in numbers of students from Africa reflects the decline in oil revenue, the lack of internal resources, and minimal assistance from abroad. There seems to be no indication that the financial tides of Africa will reverse and no indication, that I can see, that there will be substantial new funds from the United States. The continent seems not to be on anyone's priority agenda.

Central America continues to receive significant funding through USIA and AID for undergraduate Central American students. This activity, however, will surely reflect our country's interest or disinterest in the Soviet "threat" in the region. As long as support is politically expedient we shall continue.

I am sure we shall see significantly expanded opportunities for Soviet and Eastern European students. Even with this expansion the numbers will not be of the magnitude of the East Asia movement. Perhaps what counts most is the openness of the movement, heretofore unknown.

For more than half a decade, the United States has predicted a decline in its own college-age students. Similar declines are projected in much of Western Europe and in Japan. The changing demographics may affect the recruiting patterns of these receiving countries.

Developing institutional linkages are of great interest to U.S. institutions. Within the last decade, numbers seem to have increased dramatically. The American Association of State Colleges and Universities reports that fifty-eight of the AASCU institutions have one or more affiliations with China. There are well over 100 agreements. The majority of them provide for the exchange of faculty and/or students. Albeit China is a very attractive country for the development of new relationships but similar activity exists all over the world.

One aspect of linkages which bears on this discussion is that negotiated relationships often include agreements regarding the acceptance of students from each others' institutions at a certain level. There are also linkage agreements which cover issues of degree equivalencies when joint programs are offered. I am sure there is no consistency as to which office in an institution is responsible for determining the acceptance of students or degree equivalencies. We all know of linkages which have been developed without broad institutional discussion and policy formulation, and

various offices on the campuses are then left to cope with honoring the agreement once it is in place. Access is an important issue in the linkage relationship. I suggest there will be increased interest in assuring levels of access on both sides when formulating these agreements or linkages.

Study abroad programs are sometimes developed as part of a linkage relationship but many are developed as one-way programs. The vast majority of U.S. students, almost 90%, go to West European countries, in distinct contrast to the flow of foreign students to the U.S. Recent reports such as the CIEE report call for great expansion in the number of students going to non-western countries. Study abroad is an integral part of the big push to internationalize campuses. What I see as important in terms of any admissions discussion is that the issue of degree equivalencies may be pressed more strongly by Western European partners. With the emergence of the ERASMUS program and the dramatic openness of Europe, and with the high level of encouragement for foreign study, U.S. institutions may find themselves having to negotiate study abroad relationships in new ways. These negotiations will call for effective communication between the admissions and study abroad offices.

The "overseas campus" is a new activity that is rapidly taking hold. The Malaysian experience was closely tied to country development and that model continues. We are now seeing the creation of U.S. campuses in Japan. The growth of U.S. institutions in Japan is most enticing because of Japanese inducements. The franchising of American education overseas may be a future model. Somewhat in jest, Derek Bok spoke of "franchising Harvard" as he moved to internationalize the institution. He may have been more correct than he knew! As overseas campuses develop, both partners will need to have a better understanding of each other's educational systems. I don't consider it at all unlikely that some of the foreign institutions will want to negotiate levels of admission. Again, the issue of admissions access can be an important bargaining chip in negotiations.

The shortage of U.S. students and faculty in engineering and science will continue for the foreseeable future and there will be great interest in sustaining graduate student as well as post-doctoral enrollments. Our shortfall will have to be made up from abroad. But the U.S. is not alone. Most of the other large receiving countries have similar problems. In Britain, for example, over 52% of students in science and engineering are from abroad. With the unsettling situation in Hong Kong, a few U.S. institutions have already begun to make inquiries about hiring their faculty. We may find ourselves in competition for the best candidates.

The opening of the Soviet Union and Eastern Europe will surely change the admissions landscape. It is too early to fully understand how significant the changes will be, but from my own experience to date, I can tell you that there is dramatic openness, greatly increased numbers in the movement of faculty, and there is every expectation of expanding student mobility. The June 21, 1989 issue of *The Chronicle of Higher Education* reported that Czechoslovakia, Bulgaria and East Germany (not the most open of countries at this time) were also beginning to rewrite outdated educational laws and they claim that modernization is coming along.

Poland and Hungary currently reflect the greatest changes. Poland has reduced the number of required ideological courses. Hungary has dropped many of its ideological course requirements, has abolished Russian as a required language, and expects to phase it out as soon as they have sufficient teachers in other foreign languages. Both countries are looking at the U.S. system of education as a model for their restructure. Some sections in the forthcoming PIER report on Eastern Europe educational systems could be outdated within a year's time. Keep in mind that Western Europe has also begun to court Eastern Europe to participate fully in exchanges.

My point is that educational systems will undoubtedly change in the many countries which are restructuring their political systems. Look at Brazil and Argentina, where not five years ago we saw the emergence of stable governments and open societies. Confronted now with massive debt and with serious political uncertainties, the potential for change is influenced by the multiple factors of political and economic decline.

There is definite competition for foreign students. There will be more—not less. Alice Chandler's report on foreign student policy in six major receiving countries, to be published this fall, will be instructive to all of you. Her observations of France, Germany, the United Kingdom, Canada, Australia and Japan show very clearly the competition among receiving countries and how their rationales have changed. She writes that,

> "what has changed in recent years is the balance of motives. Humanitarianism and internationalism still exist as rationales for

> foreign student enrollments. But they have been overshadowed in both rhetoric and reality during the 1980s by the increased emphasis on pragmatics: by the monies to be derived from foreign student tuitions, by the purchases and expenditures made by foreign students as tourists and by the less measurable but ultimately even more important contribution to be made by foreign graduates as future financial and diplomatic allies. Added to these justifications is the value of trained intelligence itself and the contributions that foreign students do and can make to technological and scientific research and development."

Recent immigrants and refugees have become regular "participants" in educational exchange programs. The wars of Southeast Asia, Central America, Afghanistan, and other areas have created a significant expansion of the refugee and immigrant community, so much so that our society truly is changing as these new waves of immigrants continue to arrive.

As admissions personnel prepare for the future, I urge you to expand your perspective of the role you can play. I suggest that it be twofold: (1) continue to make informed assessments for admission of foreign students and scholars to U.S. institutions, and (2) serve as an informed resource within your institution as it develops or expands other international contacts—study abroad linkages, overseas campuses. This second role challenges admissions personnel to work to expand working relationships with faculty and other administrative offices. Some of you are already doing this in a very substantial way but I do not think this is a routine set of relationships on many campuses. See yourselves in the context of the growing movement to internationalize education. Be more than a gate keeper admitting foreign students, but become an informed participant in the planning, opening your institution to a larger international agenda.

If you accept an expanded role, it seems to me that you need also to consider some changes in the way in which information is gathered and shared. Given the explosion of information and the number of participants in international activity, I believe that the base of resources also has to increase.

Some of the following contacts are already involved—but perhaps they can be more so.

- IIE Overseas Offices (Hong Kong, Southeast Asia, Mexico/Central America). They are staffed by well-informed individuals who have a good sense of U.S. higher education.

- CIEE Overseas Staff. Many have good insights into foreign institutions.

- Fulbright Commissions. Many staff are excellent resources. Some of the directors are knowledgeable about U.S. higher education as well.

- Other overseas counselors. The OSEAS network offers a strong set of resources. Some of the counselors know both the U.S. and foreign systems.

- U.S. professors, particularly those who teach abroad, may be in a position to have first-hand knowledge of a foreign university, of both the structure of the system and the quality of foreign students in that institution.

- The ERIC system. Is it a resource which can be tapped?

- Washington embassy staffs and ministries of education or foreign affairs. Can these offices and officials serve as resources?

- Disciplinary and professional associations (*e.g.*, business, engineering and chemistry societies) are developing international components and have faculty members overseas who could serve as resources on a particular aspect of foreign education.

- USIA cable traffic often includes good information about local educational situations (campus strikes, closings, new institutions, and so forth). Can any of this information be added to a knowledge base?

- The concept of stringers (such as the newspaper stringers) might be explored. Could individuals who serve as stringers for the *Chronicle of Higher Education* provide useful information?

The current system of gathering information and preparing written reports and publications is slow, sometimes cumbersome, and costly. The challenge we face is how to simplify and expedite the process and at

the same time maintain appropriate quality control. There must be new opportunities and methods for gathering information which can be fed regularly into a rapid information network. For example, an alternative to WES publications might be a specialized bibliography (all available on a computerized data base). This idea came to me as I was reviewing Phil Altbach's new publication, *Foreign Students and International Study* and I was reminded how useful a bibliographic reference can be.

I am a strong advocate of collecting information on student performance. In my former life as an admissions officer, I considered performance data (or "performance impressions", more often the case) very useful indicators in making assessments. Too little is done on a regular basis at most individual institutions and even less on a national level. Computers make this idea far more feasible than it might have been in earlier years.

When I was a NAFSA board member in the mid-1960s, I was involved in the development of a proposal with Al Sims, then NAFSA President, to develop a pilot project for an international data base on student performance. This was long before many computers were in use in the admissions process. I remember several long discussions with Harold Howe in the U.S. Office of Education, only to receive a negative response to our proposal. Today that proposal would be too limited in scope and very modest financially. In those days it was thought to be too elaborate and costly. I urge you to plan with a much more futuristic perspective than either we or the U.S. Office of Education did in the mid-1960s. Perhaps the TRACE Project which initially will gather information but not analyze it, can be one model for expanded analysis.

We all need to keep in mind the effects of the information revolution on the nature of the work of the admissions community. I find the international landscape dramatically different than when I left admissions work in 1974. The majority of today's geographic trends did not exist in the early 1970s. The changes are significant even in five years. Often when we review our work we see that many of the age-old problems remain. Sometimes we believe that things have not really changed. Perhaps the problems remain but the landscape is different. It is this difference that must determine changes in our approach. To juxtapose our perception of the environment against the rapidly changing technology helps me see that things might be moving at a faster pace than I can easily comprehend. Walter Wriston said this far better than I in his article on technology:

> "Today the velocity of change is so great in all aspects of science, technology, economics and politics that the tectonic plates of national sovereignty and power have begun to shift. Political scientists and statesmen are fond of remarking that generals usually prepare to fight the previous war. Now the policymakers may be guilty of similar errors. If today's leaders in government and business fail to recognize that the world has changed because what they see, in (Barbara) Tuchman's words, does not fit in with their plans or suit their prearrangements, they will follow into oblivion a long list of leaders who have made similar mistakes. Those who can understand and master change will be tomorrow's winners."

However, as technology provides avenues for more open and rapid sharing of information, this very change may generate even greater dialogue with foreign colleagues.

Some of you will still ask, "Why should credential evaluation be so influenced, if influenced at all, by political and economic forces"? You cannot help but be influenced by these changes. The desire for access and participation in U.S. higher education is too great to be omitted in the nature of most of our political relationships. From time to time we have all basked in the satisfaction of knowing that educational exchange is most surely one of the finest instruments for developing international understanding. We have often argued that educational exchange is our greatest foreign relations success story. It should be no surprise then that there will be times when our admissions practices are discussed within political arenas.

We have, without doubt, the most diverse system of higher education in the world, both in types of institutions and in quality of institutions and content of programs. With such diversity, it is understandably confusing abroad that we have specific admission recommendations (they might say rules), within a system which accommodates such diversity. The existence of these "rules" is all the more confusing when we are developing a system which: provides flexible admission for domestic students, allows credit for work experience, allows admissions to a masters program without an undergraduate degree, and so forth.

All of us are aware of how extraordinarily confusing it is to foreign governments and other foreign enti-

ties wishing to raise questions about our higher educational system and finding that we have no ministry of education to regulate our admissions processes or at least offer government advice. It is really our non-governmental sector (and here I include both private and public colleges and universities) which controls the process, and that process is not open to negotiation or agreement with foreign governments in the same manner that such issues are usually negotiated between governments. Is our admissions review the tail that wags the diplomatic dog?

Some of you may still ask whether it matters how our review process is viewed abroad. It matters very much—our overseas colleagues may seek other avenues if future opportunities for educational relations are impeded by insurmountable obstacles often posed by traditional processes. I do not suggest that the admissions community abdicate standards and sound procedures, but I do encourage you to think of how your work—your hard developed expertise—fits into the larger arena of educational exchange and the broad landscape of foreign and cultural relations.

APPENDIX B

FOREIGN EDUCATIONAL SYSTEMS: PRIORITIES IN RESEARCH

by REBECCA DIXON,

NORTHWESTERN UNIVERSITY

Introduction

The priorities in research regarding foreign educational systems may be simply stated:

- Make sure comprehensive and accurate information is obtained for wide distribution.
- Make sure this information is so easily available that there is little question that it will be utilized.
- Make sure it is comprehensible.

Such simple goals belie the underlying complexities. One complexity derives from the fact that there is no one group in charge of deciding what is needed and then assembling and distributing information on foreign educational systems. Rather, the task has been shared—collegially, but informally. This situation is unlike others in U.S. higher education, be it fund-raising, financial aid, or football, where the person or group in charge of enunciating policy and implementing it is more clearly defined. Another underlying complexity is that "foreign admissions," "foreign student advising," "overseas programs and studies," and "English-as-a-second-language," have not always been fields of endeavor. They have evolved differently in different environments, sometimes as appendages to other offices, often without either a clear identity or with clear support.

Adding to the complexity of deciding what research is needed and how to get it done is the fact that there have been sharp changes in the international arena in the last ten years. Professionals are struggling to cope with those changes, now realizing that gradual treatments are insufficient.

The "sharp changes," to name only a few, include:

- Shifts from focus mainly on world areas that were familiar to Americans (such as Europe) to markedly different ones: Iran, Malaysia, African nations, China.
- Shift from relative freedom by a small group of familiar colleagues to enunciate with impunity our own perspectives to heightened interest by many others—including others outside education and people in other countries.
- Shift from concern mainly with foreign students to concern also with refugees or immigrants from many different countries.
- Shift from relative largess in staff and resources in our institutions to an environment of more regulations, greater accountability, and fewer resources to apply to the situation.
- Shift from the United States being uniquely all-powerful to its being one powerful player on various teams of world powers. This new condition probably affects both the way foreign-education professionals think about their work, as well as the way foreign colleagues think about us.

If there is frustration about research needs mounting, but with no clear way to meet them, there is ample reason for that feeling.

Solutions to some of our problems may lie in bold changes. It may be that only one group, a consortium perhaps, should be charged with selecting and prioritizing areas of research. It may be that simplicity, currency, and availability must always take precedence over comprehensiveness, since the latter so frequently is accompanied by datedness, distribution problems, and high cost. It may be that an entirely new way of cost-sharing must be developed. It probably is true that we will have an entirely different method of delivery,

that is, using electronic means, rather than paper. And, since review and approval of placement recommendations have become a *cause celèbre* recently, a revised review process may be needed. Training of personnel may change if the other factors change.

Greatest Needs in Information

Some of the greatest needs in international education information appear below, roughly in descending order of importance.

1. Produce more current information more frequently.
2. Give simple outlines of educational systems.
3. Provide easier access to exactly what is needed.
4. Inform more people; promote availability of materials and resources.
5. Provide more detailed information (e. g., on the Soviet Union and the People's Republic of China).
6. Gain more agreement on the interpretation of credentials.

The components of this list and their rank order are important. Much would be gained if professionals would agree on these points and take action accordingly. Simplicity, accessibility, and currency are topics that rank very high in the minds of many people. There is a defensible argument for concentrating more on timely updates, simple guides, and getting all of the countries of the world "covered."

Who Are The Users?

While international admission officers are the most frequent users of publications on international educational systems, there is a great variety of present users and potential users. The subject should be reviewed carefully for at least two reasons: if users now comprise more than the traditional group (international admission officers), the needs of these additional types should be considered; and an expanded group of users might affect cost and funding. In rough order, ranked by the amount of usage of publications on international educational systems, are the following types of users:

1. International credentials evaluators.
2. Academic departments, including graduate departments, whether they are enrolling students or hiring foreign-educated scholars.
3. Licensing boards.
4. Others involved in international exchange, including foreign student advisors, study abroad advisors, ESL staff.
5. Some secondary school counselors.
6. Educational attachés.
7. Overseas counselors.
8. Overseas governments and agencies.
9. USIA, State Department, Department of Education, U.S. embassy officials.
10. Agencies: Fulbright (CIES), IIE, etc.
11. Students.
12. Researchers.
13. U.S. employers.

Authors who write for the World Education Series (WES) or Projects in International Education Research (PIER), for example, don't intend that their audience be so diverse, but as a matter of fact, it probably is.

The Problems We Face

Funding. This probably ranks right at the top, given the withdrawal by USIA of support for the premier international educational systems publication, the World Education Series, (WES) and their reduction in funding for PIER. However, the topic is so important that we shall return to it last after discussing others.

Adequate oversight and execution: consensus about "who's in charge". Colleagues involved in credentials evaluation or foreign student placement probably would opt for as much information as often as possible, whatever the form, adding that it should be high quality and not outrageously expensive. On the other hand, funding agents and colleagues who oversee the research and distribution process, given scarce human and financial resources, probably would opt for providing the necessary information first—outlines, manuals,

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summaries, and placement recommendations. Only as time, researchers, and funds became available should more complex material be produced. But who is going to figure this out?

Perhaps the time has arrived for chartering a "research needs council." Such a group might combine some of the purposes of current committees (WES and PIER, for example) that consider research needs, but make sure that its members are thoroughly conversant with current materials and are familiar with needs across a wide spectrum of professionals. They would not only rank order whole countries for treatment, but would also denote specific topics for treatment, such as a new system of tertiary technical schools in a country, overseas U. S. institutions in Malaysia, or an unresolved inconsistency between two existing publications on the same or related subject.

Among its tasks, the "research needs council" would select topics for study; choose researchers, authors, or project directors; chronicle other sources of information; find funding; oversee publishing, promotion and distribution; commission training; and refer tasks, projects, and ideas, as appropriate, to other groups. The gain achieved by denoting such a group would be its recognition as the entity to establish priorities, to avert overlap, and to prepare the justification for the priority list. A conceivable related procedure would be for its members to be represented also on follow-through committees: an editorial board, a training committee, a fund-raising committee, etc.

Another important aspect of the subject of oversight is the manner in which conclusions are reached about use of research materials. Specifically, the National Council on the Evaluation of Foreign Educational Credentials (CEC) is the self-designated group for reviewing placement recommendations in publications on foreign educational systems. An inter-agency group that has evolved, it now has a prominence that places it under increased scrutiny. At the same time, its funding was traditionally tied to WES funding. While its member groups have valiantly come forward with minimal funding for representatives' travel expenses, there has not been time recently for the committee to reassess principles of operation, its composition, or its direction.

The intensity this group has applied to its difficult task reflects the profession's view that publications should be accurate, complete, and consistent with others on related systems. This is a frustrating task, given that the Council is brought into the project only as it nears completion. This eleventh-hour role invites questions about such a system:

1. Is the composition of the group the best? Are steps taken to assure that there are enough full-time credentials evaluators in the group at any given time? Is each constituent group providing experienced and dedicated personnel to represent them? Is there too much overlap in membership, thereby causing an unwieldy size? For example, the organizations of the Council of Graduate Schools, the American Council on Education, The American Association of Community and Junior Colleges (AACJC) and the College Board overlap with AACRAO and NAFSA in their membership. Should the observer group be reassessed? Why shouldn't there be observers from engineering or business-school organizations, for example? Is the group too large?

2. Is effort made to supplement the existing expertise with specialized expertise when needed—in engineering, teacher training, technical training, allied health professions, or about the country in question? Should external reviewers knowledgeable about the country in question be included before or during the Council meeting?

3. Is the Council trying to do too much with too little background information and too little time? Is it really necessary to make placement recommendations on every possible credential a country offers? For example, does extended discussion about religious schools, for which there is inadequate information, detract from more important topics? Should "benchmark" credentials be selected for each volume for review instead?

4. Should there be commentary about controversial recommendations, perhaps with the minority opinion being added to the volume? Should the author's opinion, if different, be given?

5. Can the Council think of a way to update its recommendations if they later should be found to be in error?

6. When a manuscript under review is based on an educational system that is also the basis for previous volumes (French-based systems, for example), is it clear that the Council has taken the earlier recommendations into consideration as it reviews similar ones from the proposed manuscript in order to assure consistency among volumes?

7. Instead of multiple committees of ever-changing membership, perhaps a more workable solution would be an omnibus consortium or an overseeing/coordinating publications committee that would initiate projects and see them through to their conclusions.

Inadequate means of cataloging materials and using all available information. The current TRACE project illustrates that data banks on international education exist to which we need to develop access. There probably are others. Certainly there is information elsewhere, both here and in other countries, but we do not have a means of systematically discovering its whereabouts and affording access to it generally. There is a possible danger in viewing the establishment of such a data bank as TRACE envisions as an end, instead of its being but one means to an end. Having a "world universities handbook" would be very useful, but it would not add to the current body of literature. It would only arrange the information and, it is hoped, make it accessible.

Author availability. We have historically worked with volunteer authors, feeling that someone involved in the field will write the best book or article. References we use besides WES, PIER, *The Country Index*, and so forth are specialized and often supplemental, as opposed to being basic, probably because they were written for another purpose. There are exceptions, of course, such as *British Qualifications*, *International Handbook of Universities*, *Commonwealth Universities Yearbook*, and so forth, that are invaluable. But if we want to know about an educational system, we usually have to "commission" a book or project. Finding qualified authors or project managers available when we need them is difficult. It also is time-consuming, because most of these people do not have sabbatical leaves and cannot devote full time to the effort. It is possible to think of a professional cadre of authors, but it is difficult to think of it without also thinking of substantial funding. Thus, in considering what we would like to have available in new information, we must be practical in considering who is going to do the research and writing, not to mention who is going to select writers and guide them.

Another way to encourage research and authorship, as well as to step up the production of research, would be to start a journal on foreign educational systems, such as those journals of other organizations or academic societies. It probably would have to be self-supporting—through subscriptions and advertising—and the articles probably should be juried. However, they might not have to have the intensive review presently given World Education Series volumes. Consider models along the line of Phi Delta Kappa's *Kappan*, *The College Board Review*, and *Change*, as opposed to some of the more popular journals that give opinions or association news. Ideally, there would be competition to be published in such a journal, one way of keeping the quality high. Also, such a "journal" might be produced in electronic form only, enabling lower costs or diversion of expenses to research, promotion of use of the information, and keeping the material up to date.

Distribution. Who reads these publications now, and how they come by them are key issues in a society where we are already on "tilt" as far as information is concerned. The results of a survey recently conducted for purposes of this symposium will illuminate this subject. Would it be useful to promote the use of foreign educational research in order to get a wider audience and more revenue to sustain the efforts of research and distribution?

The World Education Series is an elegant publication that reaches very few of the people who could benefit from it. Part of this difficulty stems from its emanating from AACRAO and its historic purpose in being written by members for members. Much of this difficulty, though, stems from people not being aware of the need to know WES's contents or being discouraged from mastering the contents, if aware. PIER publications reach a wider audience (because they are distributed to both AACRAO and NAFSA members), and they are less formidable. Some would say they aren't as substantial or accurate because of the group-writing process, but they do a lot more good than harm. And the training value of a PIER workshop is quite another matter.

Few would claim, though, that international publications, including the best-known ones, WES and PIER, actually get into the hands of *all* of the people who should have them for use in their work or into the hands of people who could benefit from them upon occasion. Present distribution systems are limited by funding and could be vastly improved if another way of promotion and distribution were found.

It is not clear to what extent people generally, in their quest for information (whatever the topic), will obtain it electronically, rather than through the traditional means of publications. The "paperless office" is more of a wish or myth than reality, but accessing the vast amounts of information people use in their daily

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lives will simply necessitate electronic means in the future. International research needs might push the concept along.

Funding

The most vexing problem, though, is lack of funding. With the withdrawal of assured funding for WES by USIA, AACRAO has filled part of the breach by retaining the editorial staff, but funding for research and printing is being sought, largely without success, on a book by book basis. Those concerned about publications of this type have not found a way to assure their funding on the on-going basis desired. Would it be useful to set as a first and major goal that of obtaining basic funding to assure that a system for producing information is maintained, with the thought of seeking supplemental funding occasionally or routinely for on-going efforts?

Why does this problem exist? A major reason is that there is no one group who considers the production of information on foreign educational systems as their responsibility. Nor does the public assign that responsibility to any one group. This is different from other subjects, for example, where ETS, the College Board, and ACT clearly feel that they are in charge of reporting on college entrance testing; and the world would agree with them.

Who is interested in seeing that information is made available? The governments of countries who want their citizens to be educated in the United States, for one. In the past, certain countries have given funding. Clearly there are perils in soliciting support from parties with a vested interest, as well as even accepting funding offered gratuitously. Such sources probably should not be approached routinely or permanently for funds, although it might be possible to obtain money from them for a general pot—without strings—for the more noble purpose of sustaining a research-distribution operation with the possibility that their country, one day, would come up for treatment. Is there an idea here?

Another source might be to approach an existing agency, publisher, or entity that does a lot of printing or distribution of information and that sustains both profit-making and break-even works in its portfolio. Such an entity probably would have other revenue-producing programs and would take on an effort we would propose to them because it wouldn't cost them anything more; it might add luster to their portfolio (or catalog), and they might hope for eventually developing a new series that would more than break even. One barrier to considering this approach seriously has been the commitment to give away PIER and WES books to the memberships of NAFSA and AACRAO. If these organizations were willing to let them be sold (perhaps at a discount to members), an agency such as the College Board, Peterson's Guides, or the Intercultural Press might be more interested in negotiation. Should this idea be pushed further—again?

Efforts at obtaining seed funds for fund raising by AACRAO and NAFSA for international efforts have not been successful. AACRAO's executive committee recently decided to experiment with hiring a professional fund raiser on a temporary basis for general purposes. If the effort succeeds, there may be a model that can be emulated in the international area. Are there examples where non-profit educational agencies have been successful in raising funds on an on-going basis? Does CASE raise money? The track record is slim and discouraging in this arena.

Training

Training people to understand foreign educational systems relates to the subject of research needs, because it is through training programs that we have one way of identifying experts or budding experts on foreign educational systems. Such programs provide a forum for thrashing out differences of interpretation of the systems. Training programs can conclude with a publication of the proceedings, thereby extending the knowledge gained to more people. It may also be easier to obtain funding for training and its consequent publication than for a mere publication; thus, it is a means to another end.

Aside from these truisms, is there not an even greater mandate to focus on training? The movement of personnel throughout the world will only accelerate in the future, creating an even greater need for understanding of foreign educational systems (and our own). The effects of misunderstanding will become more apparent. Those people in the future who are appointed to "be in charge" of international education research must also take seriously the training issue.

Getting the information to the users squirreled away in a graduate department or an overseas private counseling office is not easy, nor is it easy to train

people in its use. However, these tasks will be less formidable if there is clarity about the topics that will be covered, about oversight of production of material, about approval of final recommendations, and about distribution.

Two Models

For argument's sake, consider two models, more or less opposite in thrust:

The simple model. This model would provide simple and always up-to-date outlines of country systems, plus key ("benchmark") placement recommendations, much like *The Country Index* and the *Graduate Handbook*. The material would be disseminated widely, and its use heavily promoted among a variety of professionals. There would be a cadre of country experts (something like the National Credentials Evaluation Project) with management by a committee to assure that the material is kept up to date and accurate. The cadre would meet to discuss what they're doing, to reach agreement on their recommendations, and to manage or oversee the distribution.

The price for the information would be set so that it could be self-sustaining. It might be set to be slightly profit-making in order to support production of occasional lengthier texts (or disks). Or an agency like AACRAO could take on the management of it and contribute to its support in order to keep the price low, as well as to provide a vehicle for marketing the information.

An obvious problem with this simplified approach would be the charge that it is simplistic. Senior people in the field might become bored with it and, therefore, not support it. Certainly it would have to have a home base to sustain it.

The ornate model. Another choice would be to expand the target audience for international publications in order to get more recognition for them, as well as higher and more consistent funding. The intent would be to have the price and volume great enough to sustain the effort. Expanding the target audience would mean that the content would have to change some in order to serve those other publics.

There would have to be major marketing and distribution efforts to obtain the necessary sales volume. This kind of model would probably necessitate the use of a publishing house or a disk distribution center.

There is always the possiblity of supplementing the effort with occasional (or regular) outside grants for an especially expensive work. This effort might be linked to a training program, perhaps, to attract donors who would find a combined effort more attractive.

If the information were to be distributed electronically, support could come through user fees.

Monitoring and oversight would be complex. There might be academics, for example, on the oversight committee or representatives of professional licensing boards, librarians, publishers, etc.

The involvement of other parties unlike ourselves has its risks: less intrinsic consensus can lengthen a process or dilute its outcome, certainly make it more expensive, even as those parties bring funding or buyers to the project. At the same time, there is the possible danger that the current narrow focus on only ourselves as the audience for our studies is causing some of the present dilemma.

In both cases, there would be an entity designated as "in charge," and with related committees or entities identified as to their responsibilities and roles.

Conclusion

Whatever we consider or conclude, I suspect several realities face us: it will be different, and we shall have to take some risks. What we wind up with might not look like what we have had before.

APPENDIX C

FOREIGN EDUCATIONAL SYSTEMS: OPTIONS IN INFORMATION MANAGEMENT AND DISSEMINATION

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As funding from traditional methods (publications, periodicals, books, etc.) for sharing information on foreign educational systems becomes harder to obtain, educational exchange institutions and organizations are turning to technology for new methods to manage and disseminate information. Current traditional methods of disseminating information rely more upon production costs which are rising faster than inflation each year. These production costs (printing, binding and mailing) will continue to out-pace the ability to raise prices and the publication process will always produce dated information.

The need for faster and more timely information dissemination will allow for new pricing and funding resources by the use of technologies. The foreign education community will be able to access information electronically as it is written, and even have "topic profiles" to report information automatically as it becomes available, totally eliminating the need to search journals. Individuals might enter results of studies or policy changes that would be automatically sent to any person with the same "interest" profile. Specifically, we may take advantage of the economies of electronic exchange over established networks such as BITNET versus printed materials or simply exchange sets of microcomputer disks rather than bound volumes.

Technical advances and automated support for information exchanges have been developing for several decades. Library bibliographic utilities such as Online Computer Library Center (OCLC) or Western Library Network (WLN) and most academic libraries in the U.S. have an active inter-library loan system which supports the dissemination of information across the nation. "Conference calls" and bulletin board systems have been active for several years now.

The key to effective employment of automation is not the technology itself, but the application. Users of technology must focus attention on the resolution of business and ethical issues before dealing with technology opportunities. Options in information management and dissemination are discussed below—first in the context of related business and ethical issues. Then, technology issues are organized into categories of data architecture, emerging technologies, and related recommendations.

Business, Ethical and Technology Issues

Rather than simply making a list of generic business, ethical and technology issues, a related illustration is more helpful. Although it is not the only attempt at international cooperation, the issues that the Trans Regional Academic Mobility and Credential Evaluation (TRACE) project has and will continue to deal with are summarized below. According to the brochure on TRACE, the project is being created to "improve access to and the quality of information related to the international mobility of people and the evaluation of academic credentials." The long-range goal of TRACE is "the establishment of an international data base which will allow for immediate access to information on educational systems and institutions and enable regular updating of the data base by appropriate educational and professional authorities around the world."

Significant business issues of TRACE initiatives include:

- To formulate an oversight organization to foster cooperation, communication, publicity,

planning and commitment among participating institutions, associations and agencies.

- To maintain a future vision of emerging technologies and new business opportunities such as remote classroom instruction and training—now called "distance learning"—, remote counseling and advising, research collaboration, teleconferencing, network transmission of digitized images and voice translation into multiple languages.

- To provide a forum for debating and resolving ethical and legal issues of electronic data storage and exchange.

- To establish policies and procedures for accessing information (to include security and confidentiality issues), and exchanging standardized information on higher education and professional training.

- To gain international cooperation on data collection and updating.

- To identify appropriate educational and professional authorities to do the work.

- To achieve agreement on data collection elements and any necessary modifications of current data collection practices.

- To secure association and government sponsorship and project funding.

- To publicize the project and related activities.

Vital ethical issues are:

- Storage and exchange of electronic data. For example, is an electronic digitized signature an acceptable substitute for the real thing or is a facsimile copy of a transcript acceptable for admissions evaluation? In the legal profession these issues are being heavily debated under the topic of Electronic Data Exchange.

- The utilization of technology will require three things:

  1. Access to equipment to "tap" into these resources where millions of people, especially in developing countries, still do not even have easy access to a telephone.

  2. A literacy level to "know" how to access the material. Even with "user friendly" systems, use of technology will require a certain level of knowledge.

  3. Funding, which will continue to segregate the technology capabilities of foreign educational institutions and organizations.

Significant technology issues are:

- To identify appropriate and affordable technology, especially in the areas of a data dictionary, data base management system and telecommunications network(s).

- To establish a methodology for standardizing and maintaining a repository for data characteristics.

- To formulate techniques for achieving high quality data and avoiding duplication in the areas of data collection and updating.

- To link existing and future educational data bases over an international data network that is available worldwide.

As in the above example, it is not uncommon to see the significant business objectives and ethical issues outnumber the list of technology issues. TRACE is not the only attempt at international cooperation and information exchange. The BITNET network is expanding and members of the BITNET board are continually considering new uses of this successful network. According to Kenneth King, President of EDUCOM, the network has expanded to over 1,000 higher education institutions around the world. There are approximately 450 U.S. and 550 institutions from 32 countries outside the U.S. on BITNET. The number of NAFSAns on BITNET has grown from 32 in 1987 to 172 as of April, 1989, representing 91 schools.

EDUCOM continues to experiment with new uses of this low-cost BITNET network in the areas of distance learning and the "collaboratory" where information on a subject would be at one institution and other institutions would share it by collaborating in research or instruction. BITNET is already the vehicle for an

international "distance learning" experiment. Students from Dickinson College, Carlisle, Pennsylvania are using electronic mail (BITNET) to learn about Einstein's Theory of Relativity as part of a multi-university physics course. Two professors will pose questions to students through a bulletin board system and all participating students and faculty members can see each other's computer messages on a regular basis. Institutions participating with Dickinson include the University of Vienna, Boise State University in Idaho, New Mexico State University, Oberlin College in Ohio, Towson State University in Maryland and the University of West Florida.

It is hoped that BITNET will evolve into a universal communications network connected to national and international networks which will enable scholars to communicate electronically anywhere in the world, and to have access to worldwide information sources, special experimental instruments, and computing resources. The foundation has only been laid and much work is yet to be done to make this vision a reality.

Another example of a cooperative effort in international education is an evolving organization called the Global University (GU) Consortium. In 1972, Takeshi Utsumi initiated the Global Systems Analysis and Simulation (GLOSAS) Project for global peace gaming. The idea involves interconnecting experts via global value-added networks to discover new solutions to world crises such as the deteriorating ecology of our planet. A U.S. group now exists called GLOSAS/USA which is incorporated as a New York, non-profit, educational service organization to "assist and enhance the quality and availability of international education exchange". This group is seeking to create a Global University whose goals among others include: "The globalization of educational opportunities for all and support of research and development." The consortium is working with multinational corporations such as NHK (Japan Broadcasting Corp.), AT&T and GTE to "piggyback" on established telecommunications and computing infrastructures. Education institutions with resources could add to the available infrastructure, and schools short of financial resources may be able to provide services or courses of instruction so that a beneficial system of planetary barter might evolve (Utsumi, 1989).

Use of networks and possible consortia of this magnitude fits the goals of international education data exchange. The timing is ideal to allow international education organizations such as NAFSA and EDUCOM to participate in the leadership that will shape the future of world-wide networks. Following the identification and resolution of the business objectives and issues, evaluation of technology alternatives can begin. Application of technology must be done in the context of consistent implementation which is often referred to as a "data architecture."

Data Architecture

While the methods used to collect, store, process and report data will continually change and improve, the design of the data characteristics will be more static. If the data to be collected, the data definitions and the data characteristics remain uniform throughout the institution, changing the technology will not matter. Consistency in data naming and characteristics throughout the institution becomes the basis for an architecture. For example, student name and address are critical data for foreign students. The field length must be large enough to accommodate foreign names (up to 50 characters) and extra fields and spaces must be provided for foreign addresses. Planning for the unique needs of foreign student systems must be considered in each of the following phases of an information system.

Data Collection and Maintenance. This phase includes selection of the type and form of data to be collected, the source(s) of these data, method of converting the data to computer storage, data validation criteria and data security and privacy.

Data Storage and Retrieval. This phase considers the medium and method of storage, the form in which the data are stored and methods of retrieval.

Data Processing. The processing phase deals with the synthesis of data into useable form such as terminal displays, reports, mailing labels and graphical presentations.

Data Distribution and Utilization. The distribution phase provides the means for verification of computer reports, exception reporting, and distribution of information to authorized users and students.

The data architecture concerns are resolved when there is a desire and need for consistency. When the first library automation projects were being developed, a similar need arose for the data entry, storage and retrieval of foreign titles and notations. The standard created, and used today by many systems on multiple technology platforms, encompasses the architecture needed for catalog systems.

Emerging technologies

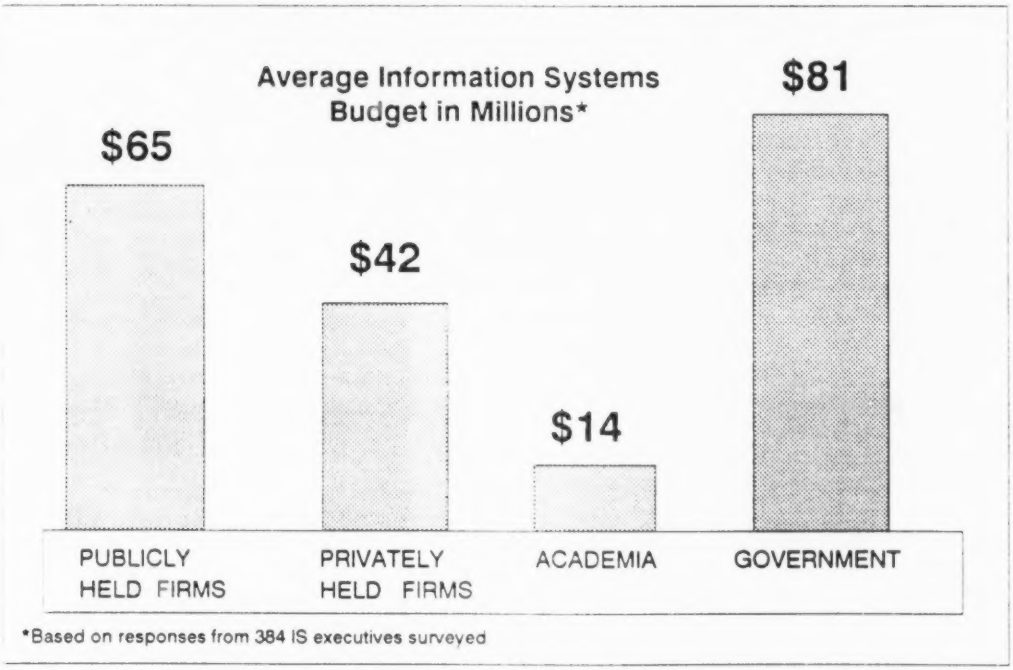
Although it is exciting to expound on developments in the state of the art, high tech and leading edge technology, the reality of affordability and appropriate technology needs to play an equal role. According to G. David Garrison, Associate Dean for Computing at North Carolina State, "It is painfully evident that most of academia is struggling to get into the alleged computer revolution."

This struggle is further illustrated in the chart below which compares the average annual information systems budgets of publicly held firms, privately held firms, higher education and government.

Regardless, many of the emerging and developing technologies properly applied may in fact be affordable and appropriate. Certainly, many of the developing technologies will actually gain efficiencies and reduce costs. Examples include microcomputing, facsimile, and electronic communication via BITNET. New developments and improvements in existing information technology include ten major technologies important to the automation of international education initiatives: the chip and the microcomputer, telecommunications, electronic storage, the smart card, software, desktop publishing, artificial intelligence, simulation, image processing, and voice/ language translation.

The Chip and the Microcomputer. In 1947, the largest computer could process 10,000 instructions per second and cost $5 million. In April, 1989, Sun Microcomputer Systems delivered a desktop workstation, called "SPARCstation 1," that can process 12 million instructions per second (MIPS) for a base price of $9,000. In addition, "the computer comes with a built-in audio system that can record and play back sounds ranging from voice mail to "rock 'n' roll" (Nash, 1989). Intel, a major chip manufacturer, just introduced a chip capa-

Comparison: Average Annual Information System Budgets



SOURCE: Society for Information Management, cited in Computerworld

ble of supporting up to 80 million instructions per second (Forsyth, 1989a). According to a special report in the March 20, *Information Week*, "At the current rate of technology development, $50 for each million instructions per second in a microcomputer is a five-year eventuality. By 1995, organizations (and higher education) will be positioning themselves for the improving power of fax, high power microcomputers and a cellular phone in a briefcase." Speaking of cellular phones, Motorola just released a cellular phone that weighs 11 ounces, fits into a purse and costs less than $3,000.

The shrinking cost and the growing power of the chip has allowed the capabilities of the microcomputer to explode. Consequently, the microcomputer is emerging from its traditional use for office systems support using such applications as electronic mail, word processing, spreadsheets, and graphics. The microcomputer is now being linked to networks, both on and off-campus, replacing dumb terminals in connecting to the institution's mainframe computer where information systems reside, and connecting with each other in what is called a Local Area Network (LAN) (Andersen, 1987). Physical bounds for computer access are expanding and home computers and "lap top" traveling computers are now common in many homes and business briefcases. Major corporations such as Sears and IBM have formed new "home" educational, news and buying services such as "Prodigy" to take advantage of home computing.

With appropriate software, the microcomputer can now easily accept downloads of data files from the institution's main computer (such as all enrolled international students). This technique frees the microcomputer user from having to enter the data manually. Once the student file has been moved onto a microcomputer, additional data can be added to each student's record (such as passport number, visa information and practical training status). Further, reports can then be prepared from the microcomputer file without involvement of the central computing resources.

New generations of "cooperative" software will allow microcomputer data bases to contain mainframe data by "pointing" to the data on the central computer without having to copy or download this information. Thus, when the main central system data changes, the microcomputer will automatically have the changes as long as the two are connected.

As a result of these new capabilities, the use of microcomputers by educators is growing. DataQuest, a San Jose market research firm, estimates that education institutions bought a quarter of the microcomputers sold in 1984. By 1988, that market share had grown to 40 percent (Forsythe, 1989a).

Telecommunications. Along with the "globalization" (movement to foreign markets) of business activities, telecommunications technology can facilitate the globalization of data banks and information exchange, particularly in international education. Effective use of telecommunications can dramatically improve efficiency and reduce costs. For example, the U.S. government has determined that it costs three cents to transfer money electronically while it costs twenty-six cents to print and mail a paper check. According to a February 2, 1989 *USA Today* article, 43% of the 37 million Social Security recipients get their benefits through electronic transfer. The rest prefer benefits by regular mail. By 1990, 50 million of the 77 million annual business payments are expected to be computer transfers, saving the government up to $18 million a year. At the same time, an electronic transmission such as facsimile often takes minutes, while a first class postal letter takes days. New means of telecommunications are continually being developed.

By 1990, optical fiber will be the primary transmission medium with capacity for 50,000 voice channels per fiber, with a fiber that is thinner than the human hair (Roberts, 1988). Other prominent means of telecommunications are microwave and satellite transmissions. A recent survey by Frost and Sullivan, a New York Market Research firm, projected that through the 1990s, satellite services will be categorized by 10-20% data transmission, 20% electronic mail, 10-30% teleconferencing and the rest voice.

New networks are being designed now to allow personal computers to do much more than today's devices, such as access movies and music from a central library. One system being developed at the University of California at Berkeley, called DASH, will allow the PC to answer the phone, display mail and send facsimiles (Savage, 1989). Multiple persons on this network could conference interactively without leaving "home." This concept is called teleconferencing or videoconferencing, and allows individuals or groups of individuals to simultaneously communicate electronically. Professor David Anderson, of UC Berkeley states that, "this technology will eliminate the need for a television...although another investment will have to be made in compatible video, sound and terminal products."

This new type of interaction, or marriage of several technologies, should change the way we are used to living and performing normal daily chores. Shopping will be different as well as how we reserve a seat on a plane or attend a conference. It is possible to see how a foreign student could submit electronically an application to several schools at once, have letters of recommendation forwarded, have credits and test scores evaluated and transferred, and be interviewed on the same network. Upon acceptance, visas and foreign documentation, travel plans and housing could all be arranged on the same network, all coordinated by a computer. This communication capability would also allow the foreign student to electronically interview with admissions counselors and even visit with other students attending the institution. Universities with courses on-line could have the student studying before arrival or performing pre-admission testing and courses prior to coming. Foreign students could arrive better prepared and informed by accessing the microcomputer and video labs in their own countries before leaving. This electronic transition could help ease the cultural and environmental transition for the student. The limitation of this technique is the lack of appropriate technology in developing parts of the world.

Traditionally, most higher education institutions participating in international exchange have been content to view communications as a telephone and telex machine. As technologies such as facsimile, electronic mail and electronic file transfer become more affordable and easier to use, institutions will clamor for access. As a result, many institutions are just now resolving appropriate business issues and the technical problems of incompatible networks, inappropriate equipment and the challenges of using the same equipment and networks for data, voice and images (pictures and video). For many institutions, multiple varieties of equipment become the norm: terminals or intelligent workstations for data entry, special equipment for word processing, specialized terminals for external data base access and fax machines and telephones on the voice network. Educational institutions are facing multi-million dollar upgrades of their campus telecommunications infrastructure to resolve these multiple device and application problems. The communications industry may help ease the problem by providing multi-purpose devices. For instance, the computer vendor NEC America already markets a fax-phone that is a full-featured facsimile device as well as a telephone, computer terminal attachment, answering machine and copier.

Electronic Storage. Up until recently, the primary means of computer storage was magnetic tape and magnetic disk. Now the same compact disk which has brought better sound to music lovers, is turning out to be a versatile and powerful medium for storing large amounts of data. This new device is called laser disk technology. According to *Forbes* magazine (January 25, 1988), one compact disk can store 600 million characters of data, enough capacity to hold the 10 million addresses and phone numbers in the New York City white-page telephone directories. A four-and-a-half-inch compact disk can hold the same amount of information as 11,000 floppy disks. The major advantage of compact disks is further described in the *Forbes* article:

> "Compact discs are not only cheaper and faster, but they can be searched by untrained users. On-line systems are random collections of data that can be addressed only by searching, but compact discs can be packaged more like books. That means giving readers the kind of tools that book publishers typically provide: things like indexes and chapter headings." (Slutsker, 1988)

Until recently, compact disks had a serious limitation. The disks were read-only, which meant that once information was placed on the disk, nothing else could be added or changed. Recent technology advances have solved this problem. The new workstation recently announced by Steve Job's new company, NeXT, uses a read-write compact disk drive from Sony Corporation. A compact disk drive attachment for a microcomputer can be found for as little as $800 each, and the price is expected to eventually drop to around $200, the cost of today's CD audio players. It is now possible to access larger and larger data bases on a microcomputer. As a result, subscriptions to international databases, books or periodicals on compact disc are becoming available without the high costs of printing and with less lead time. The U.S. Bureau of the Census has announced that it will sell 1990 census data on Compact Disk Read-Only Memory (CD-ROM) (Gates, 1988). Another area significantly impacted by this new storage capability is libraries. According to Miriam Drake, Director of Libraries at Georgia Institute of Technology, "In the long run, publishers of abstracts and indexes, statistical compendia, directories, and other items for which currency of data is essential will have to adjust to a new environment in which print is not the medium of choice." (Drake, 1988)

An exciting potential for compact disk is its expansion to video disk and the ability to store voice and images, in addition to data. Information Access Company, now offers an on-line data base that gives access

to the complete text or abstracts of articles, including the pictures (images), contained in 133 of the leading magazines and journals covering the computer industry. Currently, the service has over 3,000 periodicals, with coverage as far back as 20 years and as current as yesterday's *Wall Street Journal* (Drake, 1988). It will eventually be possible to check out a book from the library or use a textbook on optical disc rather than paper copies, once the legal issues of copyright have been resolved. Miriam Drake further describes the coming impact on libraries as society moves to non-print material, "The library will be a multimedia center dealing in words (spoken and written), statistical data, still video, motion video, graphics and interactive video."

Another key storage category is the working memory within the computer processor. According to Bill Gates of Microsoft, "The cost of memory dropped tenfold in the short history of the (computing) industry, and we'll see a drastic drop over the next three years (1989-1991)" (Gates, 1988). As a result, increasingly sophisticated (graphical interface) processing and larger workspaces within the computer will allow more work to be done on personal computers that today requires at least a mid-range computer. A word of caution—all the storage capacity becoming available is only helpful when it holds timely and correct data and software is developed to access it.

The Smart Card. The next generation of credit cards, already becoming popular in Europe, is the smart card (Latamore, 1986). This card is no larger than a regular credit card. It will fit into a bank automated teller machine and is now becoming available in higher education institutions for identification, library check-out, meal purchases, payment for copies and so forth. One such card is from SmartCard International. Called "Ulticard," it has a memory divided into three sections, each with a different security level. The first section is open and accessible to any device that can read the card. This section could contain such information as health information or the name and address of the card owner. Access to other levels of information require entry of a personal identification number (PIN). Marine recruits at Parris Island, S.C., are now having their pay "installed" on smart cards made by Microcard Technologies. When the soldiers make purchases or draw cash at post exchanges, they simply use the cards. This technology could open many new possibilities for student exchange where, for example, the card could be programmed to handle passport, visa, financial aid, and credentials information.

Software. As more computer power, memory and storage become available, so does the capability for more functional and easier-to-use software. Developing more powerful software costs more. Consequently, many of the cost reductions in hardware are being offset by the higher costs of software. Most hardware companies are realizing more and more of their revenue from software products such as operating systems, data dictionaries, network software, office tools like word processing, data base management systems, report writers and utilities. These products result in automation of tasks previously done manually or not at all.

Increasingly complex and expanding data bases are also possible. As more information becomes available electronically, the traditional methods of data searching via catalogs, concordances and indexes become cumbersome. New searching methods are needed for large-volume data and text retrieval. John Scully, President of Apple Computer, coined a term called the Knowledge Navigator to identify a new way to search for information in electronic data banks (Sculley, 1988). The concept is called "hypertext" or "hypermedia." According to Scully, " in broad terms, hypermedia is the delivery of information in forms that go beyond traditional list management and database report methods. More specifically, it means you do not have to follow a predetermined organizational scheme when searching for information." For example, imagine that information about all higher educational institutions in the world are on a CD-ROM device. The whole file has been indexed to form a super-index, a hypertext base through which the searcher will navigate. The search topic, such as "courses in computer languages," is then entered. The screen would fill with hundreds or even thousands of references. The searcher can then become more specific and narrow the search to a particular programming language. By building patterns and associations, the hypertext tool will eventually guide the searcher to the exact material required.

A recent Arthur Anderson & Company study concluded that, "Although there have been major improvements in software technology already, they will be minor compared to the benefits derived from the next generation of software." The most significant improvements will be in the area of intuitive graphical interfaces to computer systems, integrated office systems, new tools such as desktop publishing and artificial intelligence (AI) (Andersen, 1987).

Desktop Publishing. Increasingly sophisticated software and printers are being developed to enable users to design, edit and produce high quality printed letters

and documents easily. The advent of the laser printer introduced by Hewlett-Packard, called the Laser Jet, provided a PC user with the ability to produce high quality output with multiple print fonts. The result has been significant savings of dollars previously spent on typesetting services and long lead times for delivery of the final product (Diamond. 1986).

Today, quality desktop publishing software can be found for less than $700 and laser printers are available for under $1,000. Exciting opportunities for inexpensive preparation of timely foreign education publications are now possible.

Artificial Intelligence. Computers with artificial intelligence (AI) software are now able to perform tasks once only thought possible by humans, such as diagnosing diseases, analyzing financial forecasts, and playing chess. AI simulates the knowledge of the human expert, and applies this knowledge to make the best choices, given incomplete or imprecise information. In the context of foreign educational systems, AI can assist in the collection, processing, maintenance and dissemination of data. For instance, the data entry person could enter the word "New York" and the computer could be programmed to know there is both a state and a city of New York. The computer could then respond with a question to the user, asking whether the state or the city of New York was meant. Another possible application of AI is in the area of name recognition and searching. AI software, encoded with the wide variety of coding rules for foreign names and addresses, would save years of personnel training in the idiosyncrasies of these data. Name searching could be by exact, look-alike or sound-alike spelling. One of the greatest advantages of these systems is the ability to scan large amounts of data and check out more possibilities and relationships than a human can in the same amount of time.

Simulation. The improving capabilities of simulation software and techniques offer new ways to track foreign student mobility, educational patterns, interests and trend analysis. Combine these techniques with graphics and impressive reports can be prepared. Cooperation among multiple agencies to share data on foreign students, trends and educational systems is necessary to feed the simulation software.

Image processing. The next natural step in technology development is to digitize images and expand the capabilities of networks to send them and data bases to store them, most likely on laser disk. One of the success stories of the use of this technology is American Express (Fisher, 1989). The company places all credit card billing forms and credit applications on a scanner that copies the document into thousands of digits and then stores the digits on disk. The digits can then be called from disk and displayed on a screen or printed on a laser printer. American Express customers receive a printed copy of the digitized image of the original signed debit or credit slip rather than a carbon copy. Although legal issues are still being debated, the original paper copy can technically be destroyed.

The results of a study entitled "The Legality of Optical (digitized images) Storage," conducted by Cohasset Associates, a Chicago-based records management consultant group, support the view that imaging systems have legal status. The IRS is planning to store tax returns in image form on optical disk and expects the Justice Department to rule that this storage is acceptable in a court of law. The legislature of the State of Texas recently passed a law putting optical storage on the same legal footing as microfilm for certain uses (Leinfuss, 1989).

The potential benefits of storing digitized copies of foreign documents are imminent. Course catalogs, applications of all kinds, legal attachments, and so forth, are some examples. TOEFL is imaging a photograph of test takers onto the score report. Imagine the benefits of sending these scanned images over international networks. Data entry could also be assisted by scanning the application image and placing data into computer files directly from the digitized copy without having to key in the data. Filing is virtually eliminated.

Image data cannot be added to data bases simply as another data type. Special software and high powered computers are needed to manage digitized images and more experience is needed to make full use of this improving technology (Holt, 1989). However, basic image processing devices can be added to mid-sized microcomputers for under $1,000.

Voice Recognition and Language Translation. Technology now exists to translate voice patterns into text. This technique enables computers to recognize spoken words as long as the speaker speaks slowly. Research breakthroughs are continually allowing the speed of voice recognition to increase and words to be spoken in different languages. In fact, language translation capabilities are allowing input in one language with a verbal response in another. Tying this technology into an international network offers new possibilities for corresponding in different languages and being able to "communicate" at the same time. Persons in different countries could scan a foreign education data base and

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have the data stored in "English" and the output provided in the language of choice, either spoken or in writing. Word processing software now has the ability to compose and proofread printed materials in multiple languages and laser printers can print in foreign fonts.

Recommendations

One of the biggest challenges facing international education offices is obtaining funding and computing support for their initiatives and basic program support. In his book *Strategy*, Liddell Hart studied all the successes and failures of the world's noteworthy battles. He concludes that the key to success is simple: never initiate a frontal attack— it's suicidal. The successful strategy is to attack from the sides and in small groups who eventually combine to force the victory. The most successful way to gain automation support is the same. Do not rely on frontal attacks which bemoan lack of support or solely on direct requests for funding. The success stories come from persons who let automation evolve. Start small with microcomputer systems, quietly create partnerships with offices having common needs (*i.e.*, admissions, advisory programs, international development, graduate school offices, *etc.*), take advantage of peer and vendor relationships, establish business needs that align with institutional priorities, identify projects that are marketable to the funding sources and foster a champion or sponsor within the computing organization. The best place to begin an automation plan is with a vision of what is possible and achievable within an institution's culture, political environment, available technology, and funding. There is no magic formula or set of rules that will insure successful automation of foreign education activities. Complex variables and multiple technologies all play a part; however, the one variable in every success story is the presence of an energetic and visionary leader.

Educate yourself. Take every opportunity to read about automation options, attend conferences and symposiums related to computing in education, talk with peers, visit other institutions, learn how other offices within your institution have achieved automation, and seek out learning opportunities and classes offered by your computing organization. If your institution doesn't offer basic computing courses most community computer stores do. Consider entry level computer courses offered by computer science or business information systems departments. Join an appropriate computer group such as the Microcomputer Interest Group (MicroSIG) now being formed within NAFSA.

Get a microcomputer, even if you buy it yourself, and learn the basics of the hardware and available software packages. Select the hardware and software supported by the central computing organization so you can get their support and expertise. Begin by understanding the essentials of word processing, spreadsheets and data base management systems. You cannot create a vision of what is possible without a basic understanding of computing.

Market the special nature of foreign student information systems. What is really unique about foreign student offices is the need to deal with a subset of the student population and a very small percentage of the data base. No U.S. student will need a passport number and expiration date, visa status, INS tracking number and so forth. Nor is any academic office on a U.S. campus responsible administratively for students after they graduate. International education offices are saddled with practical training oversight. These responsibilities are best handled on microcomputers with electronic file connections to the central data base(s).

Table 1. Average Personal Computer Cost Per Year

Cost Category	Annual Expense	Percent of Total Costs
Hardware (peripherals, LANs, maint., etc)[1]	$3,300	18%
Software[2]	1,650	10%
Corporate Support Group[3]	7,000	39%
Corporate Data Access Charges	300	2%
Training Within Business Unit[4]	1,300	7%
Support and Other Costs	4,450	24%
Total Annual Costs	**$18,000**	

[1] Hardware purchases are straight-line depreciated over three years
[2] Includes expense for custom software
[3] Information Center, Acquisition Centers, etc.
[4] Includes training expense plus time spent by employee in training

SOURCE: Nolan Norton Institute

Take advantage of existing institutional systems to get downloads of central file data to microcomputers. Use these data and a word processing package to write letters to the students using mail-merge facilities, and data base processes for reports. Once the data is on a microcomputer file, additional data elements can be added to the record without having to re-key the student's entire set of data. In most institutions today, not being a part of the central data base is more political than technical. In spite of the glowing projections of microcomputer usage and shrinking costs of hardware it would be useful to put this into perspective. The publication *Computer Economic$* (January, 1989) presents the following report of the real annual costs of supporting a microcomputer.

> "Most financial measures of personal computer costs take into account only the price of the hardware and software. In an effort to capture all associated costs, the Nolan Norton Institute recently conducted a survey of numerous individuals within sixteen organizations, usually characterized by intensive PC usage.
>
> "Table 1 shows the results: all costs were calculated by summing actual business unit expenses, then dividing by the number of PCs per unit.
>
> "The information in Table 1 was also compared to a previous study conducted in 1984. On the basis of this comparison, it was concluded that the total annual spending per PC is 60% to 120% greater than it was in 1984. This increase is largely the result of an increase in support resources. Furthermore, it is certain that the current $18,000 per year cost of owning a PC will increase as expected improvements in connectivity foster creation of large end use data bases and networks."

While no educational institution spends $18,000 per year to support a microcomputer, the cost catagories still apply. Once the microcomputer is purchased the costs only begin. Equipment maintenance and re-

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pair, upgrades to new versions of software that are occurring more frequently every year, training time, lost work time during the learning curve, and so on all add up to yearly costs. As more microcomputers sprout up within the institution, more money and people are put into training and support. Furthermore, the life span of a microcomputer is shrinking to about three to five years before needing an upgrade or total replacement. Finally, an office that installs a microcomputer(s) must accept the responsibility of site and data security, personnel training, data entry, data quality, and file backup.

Take advantage of the opportunities of existing local campus and international electronic mail networks and file transfer capabilities. Most institutions still move paper copies of admissions folders from department to department, often taking three to four weeks for admissions decisions. If these documents could be scanned and stored electronically, the entire review process could be shortened. This concept is similar to electronic submission of purchase orders, personnel action forms, leave records and payroll verifications and is being called "electronic approvals" or "electronic signature."

Continue to support manual processing alternatives for institutions and countries that do not have access to current and evolving technology. Consider relationships with new organizations to co-develop technology for foreign data exchange such as library organizations like the American Library Association (ALA) and library automation vendors such as Faxon. In addition, build relationships with multinational vendors establishing international communications networks, such as AT&T, General Telephone Electronics, IBM and Digital Equipment Corporation.

MIT's Sloan School of Management and a consortium of twelve corporate underwriters has just released the results of a five year study entitled "Management in the Next Decade." Among other things, the study concludes that information technology is no longer being viewed as a quick-fix solution. Complex data bases, international networks, and effective use of evolving technology require multi-year implementations and sustained management commitment to succeed. While the use of technology beyond simple word processing and microcomputer reporting may provide improved data exchange, it will come at a price. The reality is that there will likely be an increase in the cost of data exchange and personnel training, although it will still be less costly than using traditional methods of information management and dissemination (Forsyth, 1989b).

Even though the concepts of distance learning, electronic communications and videoconferencing sound exciting, the exchange remains basically intellectual, not cultural. The promise of technology must be tempered within the motives of international education exchange. William H. Melody, a professor of Communications at Simon Fraser University in Burnaby, B.C., observes that, "One of the major results of research into new technologies over the last few years is the discovery of the irreplaceable nature of face-to-face contact. The fact is that there's only a limited amount you can achieve without bringing people together. Studies have shown, for example, that videoconferencing only works when people have met and know each other on a personal level." Melody further states, "The information explosion will detonate a demand for a new breed of workers...because as more information becomes available, there will be an even greater demand for filtering it." The corollary to the educational exchange worker is clear—as technology facilitates the collection, storage, processing and dissemination of international education information, there will be a growing demand for filtering and understanding it.

Emerging technologies are exciting, attainable and much is available today. While there is a learning curve, computing is no more mysterious than understanding foreign educational systems. Like everything else, you just sit down and learn it. What will happen is that the next generation of helpful technology will emerge right before our eyes and probably before we know it. And, rather than marvel at the wonders of technology, we'll come to take it for granted.

REFERENCES

Andersen, A. (1987). *Trends in Information Technology* (3rd ed.). Chicago.

Diamond, S. (1986, November). Electronic publishing. *Modern Office Technology*, pp. 54-58.

Drake, M. (1988). From print to non-print materials: library information delivery systems. *Educom, 23*(2).

Fisher, M. (1989, April 15). Digging out with image technology. *Datamation*, pp. 18-24.

Forsyth, J. (1989, March 20). Chip advances. *Information Week*, p. 32.

Forsyth, J. (1989, April 3). Management in the next decade. *Information Week*, p. 30.

Gates, W. (1988). Computing then, now, and in the future: advanced graphics, networking and CD-ROM. *Educom, 32*(1).

Holt, S. (1988). The future according to Pogo. *T.H.E. Journal (Technological Horizons in Education), 16*(6), 58-62.

Kerr, S. (1989, April 15). Legal laissez-faire. *Datamation*, pp. 54-56.

Latamore, B. (1986, November). The everything card. *Datamation*, p. 91.

Leinfuss, E. (1989, March 7). *Management Information Systems Week*, p. 6.

Nash, J. (1989, April 24). Power station in a pizza box. *Time*, p. 51.

Roberts, M. (1988). Campus networking strategies: an introduction. *Educom, 23*(1).

Savage, J. (1989, April 17). Developers forging network for everyone. *Computerworld*, p. 57.

Sculley, J. (1988). The relationship between business and higher education: a perspective on the twenty-first century. *Educom, 23*(1).

Slutsker, G. (1988, January 25). *Forbes*, p. 90.

Utsumi, T. (1989). The global university consortium. *T.H.E. Journal (Technological Horizons in Education), 16*(7), 38-39.

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APPENDIX D

1989 SURVEY OF USERS OF INFORMATION ON FOREIGN EDUCATIONAL SYSTEMS: A SUMMARY

Prepared for the 1989 Symposium on Foreign Educational Systems: Future Directions in Research and Information Management, sponsored by the National Association for Foreign Student Affairs, funded by the United States Information Agency.

In preparation for the 1989 Symposium on Foreign Educational Systems, the Symposium Planning Committee determined that the users of information on foreign educational systems should be surveyed to obtain their views on the following questions:

a. What types of information about foreign educational systems are most important?

b. For which countries is more or better information most needed?

c. How useful are current sources of information, and which are most valuable?

d. What methods of transmission of information are preferred?

e. What other concerns do users have about the availability, quality, or currency of information?

The Symposium Planning Committee also agreed that: (1) included in the survey should be not only foreign student admissions officers (Admissions Section ADSEC), but also foreign student advisers (Council of Advisers to Foreign Students and Scholars CAFSS), and study abroad advisers (Section of U.S. Students Abroad/SECUSSA); (2) the survey should be sent to a random sample of the members of these three constituencies of the National Association for Foreign Student Affairs; and (3) the survey should be as brief as possible.

The survey form was constructed with input from the Symposium Planning Committee and technical assistance from the University of Illinois Survey Research Laboratory, which also advised on the sample size and survey methodology. The NAFSA merged mailing lists yielded 4,441 unduplicated names and addresses of ADSEC, CAFSS, and SECUSSA members. As a pre-test of the instrument, 100 copies of the survey were mailed on March 6, 1989 to randomly selected names from the NAFSA mailing list, in order to check response rate and identify flaws in the instrument. Thirty-one surveys were returned. Only minor changes in the survey form were indicated. The pre-test results were not included in the actual survey.

On April 17, 1,201 copies of the revised survey form were mailed to persons randomly selected from the mailing list. Usable responses were received from 341 (28%). This number of responses yields a 95% level of confidence that the results would be the same if the entire mailing list had been surveyed and all had responded.

Major findings of the survey are summarized below. A complete tally of the responses, for the entire group of respondents and for each of the three subgroups (162 foreign student admissions officers, 111 foreign student advisers, and 50 study abroad advisers) is on file at the NAFSA Central Office. Eighteen respondents failed to check one of the three sub-group categories on the survey form. Their responses are included in the total group only. A summary of other characteristics of the respondents and their institutions is also on file at the NAFSA Central Office.

What Types of Information are Most Important?

Twenty-four different types of information were listed, and respondents were asked to indicate whether each was "very important," "iimportant," "not very important," or "not at all important." Among the total group of respondents, the ten types of information with the largest number of "very important" choices were:

Rank	Information	# Respondents
1.	Postsecondary education (university)	255
2.	Grading systems	236
3.	Lists of accredited/ recognized institutions	220

4.	Grading practices	218
5.	Credentials needed to determine admission and placement	196
6.	Admissions requirements	186
7.	Degree requirements	186
8.	Systems of accreditation/ recognition	170
9.	General description of the system	170
10.	Secondary education	168

For the entire group of respondents, the following five types of information ranked at the top when responses indicating "very important" and "important" were combined:

1.	Postsecondary education (university)	309
2.	General description of the system	306
3.	Grading systems	297
4.	Grading practices	295
5.	Lists of accredited/ recognized institutions	288

Heading the list of types of information regarded as "not at all important" were:

1.	Primary education	97
2.	Study abroad opportunities	64
3.	Secondary education	36
4.	Postsecondary education/ non-university	36
5.	Linkages between foreign-U.S. institutions	32

When "not at all important" and "not very important" responses were combined, the choices of the largest numbers of respondents were:

1.	Primary education	233
2.	Study abroad opportunities	185
3.	Linkages between foreign-U.S. institutions	111
4.	History and background of the system	110
5.	Bibliography of additional sources.	110

It should be noted that the low ratings for "study abroad opportunities" were primarily those of the foreign student admissions officers, with 105 of 144 indicating "not very" or "not at all" important. Among the study abroad adviser respondents, ratings of information on "study abroad opportunities" were very high: 43 of 46 indicated that such information was very or somewhat important. Foreign student advisers were almost evenly divided between "important" and "not important" responses regarding study abroad opportunities.

Do the views of foreign student admissions officers differ from those of the total respondent group? Not markedly. "Grading systems" received the largest number of "very important" choices, followed by "postsecondary education (university)" and "grading practices." The combination of "very important" and "somewhat important" categories indicated "grading systems" and "grading practices" as the top choices among types of information needed, followed by "general descriptions of the system" and "lists of accredited/recognized institutions." Least important were "study abroad opportunities", followed by "primary education" and "linkages between foreign-U.S. institutions".

For What Countries are Users Most in Need of Information?

Those surveyed were asked to list the five countries for which they were most in need of more or better information. The ten countries listed most frequently were:

Rank	Country	# Respondents
1.	People's Republic of China	163
2.	Japan	96
3.	India	82
4.	Taiwan	58

5.	Korea	45
6.	U.S.S.R.	40
7.	Indonesia	32
8.	Malaysia	30
9.	Canada	28
10.	Brazil	24

Admissions officers varied only slightly from the overall group responses, listing "priority" countries in the following order: People's Republic of China, India, Japan, U.S.S.R., Taiwan, Canada, Pakistan, Brazil and Nigeria (tied), Korea and Poland (tied), and Malaysia and the Philippines (tied).

How Useful are Current Sources of Information?

Respondents were requested to rate the usefulness of ten frequently-used sources of information as "very useful," "somewhat useful," "not very useful," "not at all useful," or "don't know." They were also asked to choose the one which was most valuable and the one which was second most valuable.

In terms of usefulness, the following five sources received the largest number of "very useful" choices:

Rank	Source of Information	# Respondents
1.	World Education Series	161
2.	*Foreign Educational Credentials Required for Consideration of Admission to Universities and Colleges in the U.S.*	139
3.	PIER Workshop Reports	125
4.	*The Country Index*	107
5.	*International Handbook of Universities*	87

When the "very useful" and "somewhat useful" categories were combined, the sources, in order of their usefulness to the respondents, were:

1.	*Foreign Educational Credentials Required...*	213
2.	World Education Series	205
3.	*The Country Index*	199
4.	PIER Workshop Reports	180
5.	*International Handbook of Universities*	160

The sources most often regarded as "not very useful" and "not at all useful" were:

1.	*World Guide to Higher Education*	51
2.	*International Guide to Qualifications in Education*	47
3.	*International Encyclopedia of Higher Education*	47

Those sources which most often received a "don't know" response, indicating lack of knowledge of the publication, were:

1.	*International Guide to Qualifications in Education*	148
2.	*International Encylopedia of Higher Education*	146
3.	*World Guide to Higher Education*	136

The responses of foreign student admissions officers closely paralleled those of the entire group. Leading the sources rated "very useful" were the World Education Series (112) and *Foreign Educational Credentials Required...* (87), followed by PIER Workshop Reports (84), and *The Country Index* (72). Combining "very useful" and "somewhat useful" ratings led to the same four sources, with total responses of 125, 124, 112, and 112 respectively.

An examination of the selection of "most valuable" sources resulted in the following choices by the total group:

World Education Series	90
Foreign Educational Credentials Required...	59
The Country Index	35
PIER Workshop Reports	23

When "most valuable" and "second most valuable" choices were combined, the four publications most highly rated were World Education Series (130), *Foreign Educational Credentials Required...* (87), PIER Workshop Reports (87), and *The Country Index* (60).

For the foreign student admissions officers, the same combined choices ("most valuable" and "second most valuable") were:

World Education Series	87
PIER Workshop Reports	55
Foreign Educational Credentials Required...	45
The Country Index	38

Among foreign student advisers, the "most valuable" and "second most valuable" choices combined were World Education Series (28) and *Foreign Educational Credentials Required...* (27). For study abroad advisers, the combination of "most valuable" and "second most valuable" (18) yielded the *International Handbook of Universities* as the top choice.

What Methods of Transmission of Information are Preferred?

Respondents were asked to rank five methods of transmission of information: "computer disks," "computer networks," "periodicals," "specific publications," and "other." The clear preference was for "specific publications," which received 164 first-place rankings compared with only 81 first-place rankings for "periodicals," the second most popular choice.

When first and second rankings are combined, "specific publications" still leads (245) and periodicals are second (227). Computer disks received 93 first and second rankings, and computer networks, 65. Rankings by admissions officers resulted in identical preferences, as did those by study abroad advisers and foreign student advisers.

"Other" methods of transmission were listed by 24 respondents, but only "conferences-workshops" (8) was mentioned by more than one or two.

What Other Concerns Do Users Have About the Availability, Quality, or Currency of Information About Foreign Educational Systems?

Sixty-four of the 341 respondents (19%) answered this inquiry—and 55 percent of them voiced the same concern: the lack of adequate updating. The following comments are illustrative. "I worry when the information I have is over five years old on any country." "Changes!! Need scheme of continual updating!" "Because of rapid changes in some countries, I am always concerned about timeliness of published information." "So much of what is available seems outdated."

One respondent suggested, "NAFSA should have committees for countries or groups of countries that could continually (update)." Outdated information can still be valuable, another respondent noted: "Current we aren't, but current isn't everything if we lose the recent past when people from that system still exist."

The only other concern expressed by more than one or two respondents was the fear of reduced funding. "Worried about funding for WES as they are our best source," and "Information may dry up due to a lack of funding," were two typical comments.

Comments and Conclusions

The purpose of the survey was to provide to symposium participants the views of a broader population of users of information on foreign educational systems. The sample survey of foreign student admissions officers, foreign student advisers, and study abroad advisers yielded a 95% level of confidence that the views of the respondents were representative of the total population.

Users are primarily interested in obtaining information on postsecondary education (university), grading systems and practices, lists of accredited/recognized institutions, descriptions of credentials, admission and degree requirements, accreditation/recognition systems, general descriptions of the educational systems, and secondary education. While there may be no surprises in this list, it is interesting to note the very strong rating of grading systems and practices.

Least important items of information appeared to be primary education, study abroad opportunities (except for the sub-group of study abroad advisers), U.S.-foreign institution linkages, system background and history, and additional sources of information.

Clearly the top choice among countries for which the users need more and better information is the People's Republic of China. The second choice is Japan (for which a World Education Series volume will be published this summer), followed by India, Taiwan, Korea, and the U.S.S.R. The list of "priority" countries may help in the choice of educational systems for research and publication in the near future.

Among the current sources of information on foreign educational systems, the World Education Series

was labeled most useful, and most valuable. When the top two categories of usefulness were combined, however, the AACRAO-AID publication, *Foreign Educational Credentials Required for Consideration of Admission to Universities and Colleges in the U.S.*, topped the list. Other highly rated sources of information are PIER workshop reports, *The Country Index*, and the *International Handbook of Universities*. These ratings may help to guide the development of new or enhanced sources of information in the future.

Users express a strong preference for specific publications as the medium of transmission of information about foreign educational systems. Newer methods of transmission, such as computer disks and networks, received relatively low ratings. This probably reflects, to a large extent, the lack of familiarity with newer techniques, and the lack of availability of equipment.

An overwhelming concern of users is the lack of adequate updating of information on foreign educational systems—an issue which the symposium is expected to address.

APPENDIX E

1989 SURVEY OF ASSOCIATIONS AND AGENCIES: A SUMMARY

Prepared for the 1989 Symposium of Foreign Educational Systems: Future Directions in Research and Information Management. Sponsored by the National Association for Foreign Student Affairs. Funded by the United States Information Agency.

Members of the Symposium Planning Committee requested a survey of associations and agencies involved in foreign educational exchange, for the purpose of obtaining their views and concerns related to the development and flow of information on foreign educational systems. Survey forms were mailed to thirteen associations and agencies on March 7, 1989:

Accreditation Board for Engineering and Technology/ABET

Agency for International Development, Office of International Training /AID/OIT

American Association of Collegiate Registrars and Admissions Officers/AACRAO

American Association of Community and Junior Colleges/AACJC

American Mideast Educational and Training Services/AMIDEAST

The College Board, Office of International Education

Comparative International Education Society/CIES

Council of Graduate Schools/CGS

Institute of International Education/IIE

International Association of Universities

National Association for Foreign Student Affairs/NAFSA

U.S. Department of Education, Center for International Education

United States Information Agency/USIA.

Responses were received from all thirteen associations/agencies. A copy of the original survey form and cover letter are on file in the NAFSA Central Office. The questions asked and the responses received are summarized below.

Which tasks are most important in improving the development and flow of information on foreign educational systems? Which of these tasks could the association or agency help to perform?

Eight tasks were listed on the survey, and respondents were asked to rate each as "very important," "somewhat important," "not important," or "don't know." Only one or two respondents checked any of the tasks as "not important," and only one was checked "don't know" by one respondent. Table 1 lists the tasks with the number of "very important" and "somewhat important" ratings for each. In the latter category, the task receiving the greatest endorsement was "improve access to information on foreign educational systems which has been developed by other countries" (11), followed closely by "improve the collection and maintenance of information" (10), and "enhance the training and professional development of those working in the field" (10). Table 1 also gives the number of respondents who believed their associations or agencies could help perform each of the tasks.

What issues of special concern should be addressed in the symposium?

Listed below are those issues of special concern to the associations and agencies which the respondents believed should be addressed by the symposium:

a. Registration/licensing/practice for professionals.

b. Cost-effective research and dissemination of information. The production of publications that are of interest to a broad readership is also of concern.

c. Data collection and publication of information on U.S. system should not be overlooked in this dialogue.

Table 1. Relative Importance of Tasks in Improving the Development and Flow of Information on Foreign Educational Systems; Which Tasks Might Associations/Agencies Help to Perform?

Tasks	Very Important	Very Important or Somewhat Important	Associations/Agencies Willing to Help Perform
1. Enhance the training and professional development of those working in the field	9	10	7
2. Provide systematic information about the needs of users to those involved in the direction of research on foreign educational systems	6	9	9
3. Improve the coordination of research and publication on foreign educational systems	6	8	7
4. Improve the process of official approval of placement recommendations	6	6	2
5. Improve the application of emerging technologies to information gathering, maintenance, and distribution	7	9	4
6. Improve the collection and maintenance of information on foreign educational systems	8	10	8
7. Improve access to information on foreign educational systems which has been developed by other countries concerning their own or other systems	9	11	7
8. Identify sources of funding for gathering, maintaining, distributing, and utilizing information on foreign educational systems	8	9	3

d. Improve the development and flow of information on the U.S. system of education to other countries.

e. Address the issue of recognition of U.S. degrees, diplomas, and certificates by other countries for job placement and/or further study in an individual's own country.

f. There is a proliferation of U.S. "type" schools abroad. Often they are of questionable value and accreditation status and getting the word to all interested parties is difficult. For example, many Arabs are attending schools in Europe that claim affiliation with a U.S. accredited institution. The students' home countries are unsure as to how to equate the degree with a local one. Also, U.S. schools don't know what to do with the degree either.

g. The development of adequate data on international vocational/technical education and training.

h. Opening of avenues of communication from foreign educational systems to U.S. institutions.

i. Improve the application of emerging technologies to information gathering, maintenance, and distribution.

j. Improve the collection and maintenance of information on foreign educational systems.

k. Improve access to information on foreign educational systems which has been developed by other countries concerning their own or other systems.

l. The matter of funding for World Education Series volumes must be taken into consideration. These books (or any other form of them) are far too valuable to everyone in this field to have several "in the wings" waiting for some form of funding to be found.

m. What do users really need? How can it be provided and maintained in a cost-effective manner? How can new technologies be used? How can funding be made available to produce information that is timely and in a useable form?

n. Hope for well-balanced presentations of foreign educational systems in a comparative perspective.

o. The transfer of information across "invisible borders" such as South/North or from non-Western, non-capitalist countries.

p. Relationships between two approaches: coordination of on-going information gathering activities; development of new information gathering activities. Data gathering is difficult, expensive, time consuming, and irritating to those who have to provide the information. Anything that simplifies without degrading quality is good; duplication is not good.

q. The placement recommendation process.

r. The relevance of the content of current World Education Series volumes (documentation, history of country, etc.).

s. Getting foreign governments to understand the credential evaluation process.

t. Guidelines/recommendations vs. acceptance of volume's indications as "rigid" admissions criteria.

What suggestions do association/agency representatives have for improving any aspect of the collection, evaluation, and dissemination of information on foreign educational systems?

Below are the suggestions of the respondents:

a. Too much effort to date on comparing foreign systems to U.S. system, using U.S. as the standard. Not sufficient effort in evaluating the value of foreign systems and their positive or negative impact and appropriateness to their environment. Need more attention to "professional" program equivalency—licensed professionals which require the evaluations by members of the profession in question with education backgrounds, not education specialists.

b. Evaluation: An examination of the role played by the Council for the Evaluation of Foreign Educational Credentials might be undertaken, examining the international context in which U.S. placement recommendations are scrutinized.

Dissemination: The possibility of making use of new technologies/modes of dissemination of the results of admissions research should be explored, with the goal of making reports both more timely and more cost-effective.

c. Electronic collection and dissemination is the most cost-effective and assures the widest audience.

d. Enlist the interest and cooperation of "users" of information about foreign educational systems and of the appropriate university and college administrators in the development of skills, experience, and judgment of these people in the use of current resources available and in ways and means of keeping up with developments as they occur in the field. It appears there may be more information currently available for use than is being utilized judiciously.

e. Organizations which already collect and disseminate information need to identify areas where there may be overlaps already, and where each organization's relative strengths are in terms of kinds of information collected/disseminated. Perhaps more important, we need to identify what information is needed but not available, thus helping organizations/ agencies to establish research/ publications priorities. NAFSA, USIA, and now AMIDEAST, are collecting a wealth of material on "questionable" institutions abroad. We all need to know what each is doing, but we don't want to create any laborious or hard-to-manage systems.

f. All our suggestions are contained in the TRACE project.

g. Computerization of collected information seems to be the most logical manner of dissemination. Not only for keeping records current, but probably from a monetary point, this would be far less costly than printing bound volumes.

h. Need to explore ways to make information available in a shorter time period and update it as appropriate. Need to develop a procedure for considering challenges, as in the case of Germany, and making adjustments, if necessary.

i. Publicize availability and sources of information (perhaps a directory of resources).

j. Meetings/workshops on a regular basis where researchers can discuss their work.

k. I am interested in the evaluation of the teaching process itself, rather than only on outcomes. I realize this aspect is not easily incorporated into a collectable form.

l. Attempt to improve relationships between and among data gatherers.

m. The possible inclusion of foreign professional educators in the meetings that make the determinations of placement recommendations.

Summary and Comments

Association and agency respondents generally agreed that all of the tasks listed were important. Indications of the willingness to help with these tasks were the most encouraging, with the largest number directed to the most basic task of all: improving the collection and maintenance of information on foreign educational systems.

Issues of special concern to the respondents covered a wide range: cost-effectiveness and coordination of research and dissemination; recognition of U.S. education abroad; proliferation of U.S.-type educational institutions abroad; applying new technologies; funding; the placement recommendation approval process; utilization of placement guidelines; and the relevance of some of the content of current publications. Symposium participants will not lack for issues. The problem will more likely be one of focusing attention on those that are most urgent and relevant.

The respondents provided a number of suggestions for improving the development and flow of information on foreign educational systems. Several themes emerged: enhance professional training; improve coordination in defining areas of need and meeting those needs; use new technology for collection and dissemination; and review the placement recommendation approval process from the international point of view. The challenge confronting symposium participants will be to convert general suggestions for improvement into specific recommendations for consideration by associations, agencies, and others involved in the development, transmission, and utilization of information on foreign educational systems.

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APPENDIX F

TRANSREGIONAL ACADEMIC MOBILITY AND CREDENTIAL EVALUATION/ TRACE: A DESCRIPTIVE SUMMARY

What is TRACE?

TRACE is:

- A decentralized computerized information network on higher education around the world.
- A link between existing and future data bases at national, regional and international organizations.
- A carefully controlled collection of standardized information (in English) on the basis of original and authentic information from participating countries around the world regarding
  - — higher education systems;
  - — higher education institutions;
  - — higher education credentials (and those giving access to higher education).
- A system of sharing information that originates with the individual institutions of higher education and, after processing on the national level and integrating into an international data base, is disseminated back to the individual institutions.
- A repository of continuously updated, state-of-the-art information accessible online, through electronic mail, diskettes or tapes, by CD-ROM disks or hard copy printouts.

What are the advantages of TRACE?

- International consensus on data collection standards and statistical assessment will make the data comparable.
- International cross-checking of the data collected will improve the quality and objectivity of the information.
- Instant availability of continuously updated information will avoid reliance on obsolete information.
- International cooperation will avoid costly duplication in data collection and dissemination.
- Concentration on hard facts only will provide a secure base for interpretation and evaluation by the specialists in the respective countries.

Who are the beneficiaries of TRACE?

Because of the decentralized structure of this international computerized network of higher education data bases, the principal beneficiaries of TRACE are the individual institutions of higher education. They provide the relevant data on themselves and, in return, receive any and all information they need on any other institution of higher education in the world.

And, TRACE will be indispensible as a professional tool for: foreign student advisors, study abroad counselors, admissions officers, registrars, credential evaluators, academic exchange organizations, researchers in comparative higher education, policymakers in higher education, ministries of education and science, and international organizations for the promotion of academic mobility.

Who "runs" TRACE?

TRACE, an innovative project of international cooperation in a politically sensitive area, was conceived in 1987 by a group of interested international education experts from eight countries. In the fall of 1989, TRACE will be established as an international, independent, not-for-profit association. Its members will be national, regional or international bodies concerned with academic mobility, counseling of students and credential evaluation. They are expected to contribute actively to the maintenance of the data base and to pay annual membership dues.

Individual institutions of higher education and other institutions and organizations in the field may be

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admitted as associate members and be charged an annual subscription fee for their participation in TRACE.

The governing bodies of TRACE will be the Assembly, composed of one member from each participating agency, and the Board of Directors, elected by the Assembly, who will act as the executive organ of the network. The TRACE Coordinating Center, located in the Office of the International Association of Universities (IAU) in Paris, will serve as a clearing house and secretariat for the network.

Who is in TRACE now and when will it become operative?

Representatives to TRACE have come from the following organizations:

- Association of Registrars of Universities and Colleges of Canada;
- Association of Universities and Colleges of Canada;
- German Academic Exchange Service (DAAD), Federal Republic of Germany;
- Zentralstelle für ausländisches Bildungswesen (ZAB), Federal Republic of Germany;
- International Association of Universities (IAU), Paris;
- Netherlands Universities Foundation for International Cooperation (NUFFIC);
- National Board of Universities and Colleges of Sweden;
- Schweizerische Zentralstelle für Hochschulwesen;
- National Academic Recognition Centre (NARIC) of the British Council, United Kingdom;
- UNESCO-Center for Higher Education in Europe(CEPES), Bucharest;
- European Institute for Education and Social Policy (ERASMUS-Bureau of the European Community), Brussels;
- National Liaison Committee on Foreign Student Admission of the United States (Council for Graduate Schools, The College Board, Institute of International Education, American Association of Collegiate Registrars and Admissions Officers, and the National Association for Foreign Student Affairs).

These and other organizations will, upon ratification of the TRACE constitution by their respective boards, become the founding members of TRACE. The network will be continuously expanded. The pace of the expansion will depend on the availability of funds. By the end of 1990, information on most of the higher education systems of Western Europe and North America should have been gathered and made available through TRACE.

What will TRACE offer?

The TRACE network has developed three data collection instruments (questionnaires):

- Profile of higher education systems;
- Profile of higher education institutions;
- Profile of degrees and diplomas awarded by higher education institutions (and secondary schools) in the various systems.

The information gathered in this way will be checked and stored electronically. Subscreens will be created to elucidate special features of a given system, institution or credential, as well as to show existing links between institutions (*e.g.*, university partnership arrangements) or between credentials (*e.g.*, national or international equivalency agreements.)

The language of the data base will be English. But all information was gathered and checked on the basis of the original nomenclature of the country concerned.

A brochure will be developed in fall, 1989 that describes, in detail, the procedures for inputting and accessing customized information through TRACE, as well as a schedule of regular updates. Depending on national practices,there may be an assessment of fees for use of the TRACE data base by individuals.

Until the formal constitution of TRACE, the Interim Steering Committee will carry out all TRACE business. Its members are:

- Jon Hagen, Netherlands Universities Foundation for International Cooperation/NUFFIC, Chair (The Hague)
- Carin Berg, Centre for Higher Education in Europe/CEPES (Bucharest)
- Franz Eberhard, International Association of Universities/IAU (Paris)
- Sanford Jameson, The College Board (Washington, DC)
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(This information was prepared in 1989 by the TRACE Interim Steering Committee.)

APPENDIX G

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